This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

WAY LIBRARY
36NW 7

TRANSACTIONS
OF THE
Minnesota State Medical Society,
1890.

Digitized by Google

Digitized by Google

Clay

V. P. 35. & 45. 46. 47.

Surg. Thyroid Gld

Report on Overvoluming
during Pregnancy left out.

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

TRANSACTIONS

—OF THE—

MINNESOTA

STATE MEDICAL SOCIETY.

1890.

ST. PAUL:
NORTHWESTERN LANCET,
1890.

Digitized by Google

OFFICERS OF THE SOCIETY.

PRESIDENT:

W. L. BEEBE, M. D.

FIRST VICE-PRESIDENT:

W. D. FLINN, M. D.

SECOND VICE-PRESIDENT:

F. E. BISSELL, M. D.

THIRD VICE-PRESIDENT:

J. E. MOORE, M. D.

SECRETARY:

C. B. WITHERLE, M. D.

TREASURER.

R. J. HILL, M. D.

CENSORS:

FOR THREE YEARS—E. J. ABBOTT, M. D.
C. A. WHEATON, M. D.

FOR TWO YEARS— R. J. HILL, M. D.
J. W. ANDREWS, M. D.

FOR ONE YEAR— S. C. McCORMICK, M. D.
G. F. FRENCH, M. D.

Digitized by Google

PROCEEDINGS

—OF THE—

TWENTY-SECOND ANNUAL MEETING

—OF THE—

MINNESOTA STATE MEDICAL SOCIETY.

The Society met at 10 A. M., Thursday, June 19, 1890, at the State Capitol, St. Paul, the President, Dr. JAMES H. DUNN, in the chair.

The session was opened with prayer by the Reverend Mr. Forbes, of St. Paul.

Drs. E. J. DAVIS, E. PHILLIPS and A. SWEENEY were appointed the Committee on New Members.

The Committee on Nominations of Chairmen of Sections was appointed as follows:

Drs. F. A. BLACKMER, E. E. BRUBAKER, W. D. FLINN, J. W. ANDREWS, S. C. MCCORMICK, E. S. FROST, E. Y. CHILTON, J. W. MCDONALD, R. J. HILL, A. MCLAREN, PARK RITCHIE.

Dr. E. J. ABBOTT, the Chairman of the Executive Committee, presented to the Society the program for the work of sections. He also, on behalf of the Ramsey County Medical Society, invited the Society to attend a banquet at the Ryan Hotel, on Friday evening, and to visit the Harris Theatre on Thursday evening. He further announced a demonstration of intestinal surgery by Dr. OHAGE, at the University Dispensary, and receptions to members and ladies by Drs. A. J. STONE and C. WILLIAMS, all on Thursday evening.

The Committee on Revision of the Constitution and By-Laws reported through its Chairman, Dr. BEARD, as follows:

CONSTITUTION AND BY-LAWS OF THE MINNESOTA STATE MEDICAL SOCIETY.

Revised 1890.

ARTICLE I.—NAME.

This Association shall be called "The Minnesota State Medical Society."

ARTICLE II.—PURPOSES.

Its objects shall be (1) the association of the medical profession upon a basis of good fellowship; (2) the maintenance of harmony and good government among its members; and (3) the cultivation of medical science and literature and the elevation of the standards of medical education.

ARTICLE III.—MEETINGS.

An annual meeting shall be held, alternately in the cities of St. Paul and Minneapolis, beginning upon the third Wednesday in June of each year, and extending over three days. The place of meeting may be changed by a two-thirds vote of the members present at any regular meeting. Special meetings may be called by the President, upon the petition of ten members, and a twenty days' notice thereof shall be published in the daily papers of St. Paul and Minneapolis.

Fifteen members will constitute a quorum at any meeting.

ARTICLE IV.—MEMBERSHIP.

The active members of the Society shall be regular physicians, shall hold the certificate of the State Board of Medical Examiners, or its legal equivalent, shall be of good professional attainment and moral character, and shall have been in active practice in the State for not less than six months prior to nomination. The honorary members of the Society may be residents or non-residents of the State. The names of candidates for active or honorary membership must be presented in writing to a Committee on Membership, which

Digitized by Google

shall pass upon their qualifications for admission, and report them to the Society for election. They shall be elected by written ballot and by a majority vote.

ARTICLE V.—OFFICERS.

The officers of the Society shall be a President, three Vice-Presidents, a Secretary, a Treasurer and a Board of Censors consisting of six members and the third Vice-President, *ex officio*. These officers shall be elected by ballot annually, and two members of the Board of Censors shall be elected similarly, each year, each to serve for a period of three years. A majority of the votes cast shall elect.

ARTICLE VI.—COMMITTEES.

The President shall appoint annually a Committee on Nominations consisting of eleven members, an Executive Committee, a Committee on New Members, a Committee on Finance, a Committee on Publication, and a Committee on Necrology, each consisting of five members.

ARTICLE VII.—SESSIONS.

The Society at each annual meeting shall hold a session of three days, and the duties of each day shall be divided into three periods, extending respectively, from 10 to 12 A. M., from 2 to 5 P. M., and from 8 to 10 P. M., excepting upon the third day of the session, when the third period may be omitted.

ARTICLE VIII.—PROFESSIONAL WORK.

The professional work of the Society shall be divided into eight departments, viz.: (1) Practice of Medicine, (2) Surgery, (3) Obstetrics and Diseases of Children, (4) Gynæcology, (5) Therapeutics and Materia Medica, (6) Nervous Diseases, (7) Pathology and Physiology, (8) Medical Education, Jurisprudence and State Medicine.

Note.—Orthopædia, Otology and Ophthalmology shall be included with Surgery. The Society shall give to each department in turn its general attention. A chairman of each department shall be nominated for the ensuing year by the Committee on Nominations, and shall be confirmed by vote of the Society.

ARTICLE IX.—ETHICS.

The Code of Ethics of the American Medical Association shall be the rule of this Society in matters of professional etiquette. Charges of unprofessional conduct may be preferred in writing against any member and shall be referred to the Board of Censors, which shall cite the accused and his accusers to appear before it, shall hear the evidence in the case and report a decision thereon to the Society. This report shall lie upon the table until the next annual meeting thereafter, when the Society, by a vote of four-fifths of the members present may adopt the same and censure or expel the offender.

ARTICLE X.—AUXILIARIES.

The county or district societies of the State shall be regarded as auxiliary to the State Medical Society.

ARTICLE XI.—AMENDMENTS.

This Constitution may be amended by a unanimous vote of the members present at any regular meeting, or, by a two-thirds vote of the members present after one year's previous motion or notice to amend has been given.

BY-LAWS.

No. 1. The President shall preside at all business meetings, shall have the privilege of a casting vote, shall appoint all committees not otherwise provided for, and fill all vacancies in the same, shall keep general oversight of the duties of these committees, shall sign all official documents requiring his signature, and perform such other duties as appertain to his office by custom.

No. 2. The Vice-Presidents shall assist the President in the performance of his duties, and in his absence shall preside in their order of rank.

No. 3. The Secretary shall keep the minutes of all meetings, shall notify officers of their election and Committees and Chairmen of Departments of their appointment, shall certify to all official acts and transact all clerical business in behalf of the Society. He shall be entitled to draw an annual salary of $100.

No. 4. The Treasurer shall receive all dues and shall deposit the same in a bank or safe depository; he shall pay all bills after they have been audited and approved by the Finance Committee and countersigned by the President; shall keep an account with the Society and make a detailed report at each meeting; he shall notify members of delinquency in the payment of fees one month prior to each meeting.

No. 5. Standing committees shall keep regular minutes of their proceedings and shall furnish copies of the same to the Secretary.

No. 6. The Executive Committee shall arrange the conduct and prepare the programs of each meeting and mail a copy of such programs to each member of the Society ten (10) days before the annual meeting. It shall recommend plans for the promotion of the objects and interests of the Society.

No. 7. The Committee on Nominations shall meet immediately after its appointment, specified in Article VIII of the Constitution, to serve for the ensuing year and shall report the names of said Chairmen to the Society at its next business session.

No. 8. The Committee on New Members shall meet as often as may be necessary during the regular meeting of the Society, and shall receive written nominations for membership. It shall canvass the eligibility of each candidate in respect to his legal qualifications, moral character and professional standing, and shall report its decision thereon to the Society.

Digitized by Google

No. 9. The Committee on Finance shall inspect and audit all bills against the Society, and the accounts of the Treasurer, and shall recommend such annual assessments over and above the annual fee which shall be $2.00 upon the members as shall be necessary to meet incidental expenses.

No. 10. The Committee on Publication, of which the Secretary shall be a member, shall select from the papers presented to the Society, such as have sufficient scientific and literary interest to warrant their publication. These transactions and papers shall be published in the NORTHWESTERN LANCET which shall be regarded as the official organ of the Society, upon the terms of an offer submittted by the LANCET, June 19, 1890, and the bound volume of the Transactions thus provided shall be sent by the Secretary to each member.

No. 11. The Committee on Necrology shall prepare a memorial of any member or members who may have died during the preceding year and shall present the same to the Society at the annual meeting.

No. 12. The Chairman of each Department shall exercise sole control over the same. All reports and papers pertaining to his department shall be submitted to him thirty (30) days previous to the annual meeting at which he reports. Within twenty (20) days of such meeting he shall furnish to the Chairman of the Executive Committee a list of all reports and papers to be presented in his Department together with the names and addresses of their authors.

No. 13. Any reports of Standing Committees or papers may be read by title upon vote of a majority of the members present, and shall be referred to the Committee on Publication. A synopsis of their contents may be given by the Chairmen of the respective Committees or Departments if desired.

No. 14. All motions presented to the Society shall be in writing, and upon being seconded shall be forwarded to the Secretary's desk for record.

No. 15. Every new member before assuming his membership shall pay an initiation fee of Three Dollars and his annual Dues of $2.00 and shall sign the Constitution and By-Laws. Any member who shall fail to pay his annual dues for a period of three years, after the receipt of due notice from the Treasurer, shall be dropped from the rolls, and shall be reinstated only by a two-thirds vote of the members present at any regular meeting and upon the full payment of his past dues.

No. 16. Robert's Rules of Order shall be regarded as the parliamentary text book of the Society.

No. 17. The order of business of the annual meeting shall be as follows:

FIRST DAY'S MEETING.

10:00 A. M. to 12 M. Business Session.

(a) Call to order by the President.

(b) Report of Executive Committee.

(c) Roll call.

(d) Reading of the minutes of the last meeting.

(e) Unfinished business or business requiring early attention.

(f) President's address.

(g) Report of the Treasurer.

2:00 P. M. to 5:00 P. M.

(a) Section of Practice of Medicine.

8:00 P. M. to 10:00 P. M.

(a) Section of Therapeutics and Materia Medica.

(b) Section of Nervous Diseases.

SECOND DAY'S MEETING.

10:00 A. M. to 12:00 M. Business Session.

(a) Reports of Correspondents.

(b) Reports of Delegates.

(c) Reports of Special Committees.

(d) Unfinished and miscellaneous business.

2:00 P. M. to 5:00 P. M.

(a) Section of Surgery.

8:00 P. M. to 10:00 P. M.

(a) Section of Pathology and Physiology.

(b) Section of Medical Education, Jurisprudence and State Medicine.

THIRD DAYS'S MEETING.

10:00 A. M. to 12 M. Business Session.

(a) Unfinished and miscellaneous business.

(b) Selection of place for next meeting.

(c) Election of officers and their installation.

(d) Election of committees.

2:00 P. M. to 5:00 P. M.

(a) Section of Obstetrics and Diseases of Children.

(b) Section of Gynæcology.

No. 18. The operation of these By-Laws may be suspended by a three-fourths vote and they may be repealed or amended by a unanimous vote at any regular meeting. If any objection is entered to such repeal or amendment, it shall be laid over for action at the next annual meeting, when it may be adopted by a two-thirds vote.

Respectfully submitted.

R. O. BEARD, Chairman.
E. J. DAVIS,
CHARLES B. WITHERLE,
W. J. MAYO.

The revised Constitution and By-Laws reported by the Committee were on motion discussed and voted upon by articles. Dr. EMERY moved that the consideration of the whole matter be deferred for one year. After discussion, Dr. EMERY'S motion was lost.

Dr. E. PHILLIPS moved to amend Art. III so that the present two days' meeting should be retained. He argued that many members of the Society could not afford to give three days to the meeting. He also objected to any change in the present

Digitized by Google

method of section work. After discussion, Dr. PHILLIPS' motion was lost.

Dr. HUNTER moved to amend Art. IX so that the Society might act immediately upon the report of the Board of Censors. Dr. HUNTER'S motion was carried. The remaining articles of the Constitution were adopted without objection.

Dr. BEARD moved that the Constitution and By-Laws as adopted be spread upon the records and that they become a part of the Proceedings of this meeting and be so published. Dr. BEARD'S motion was adopted without dissent.

Dr. M. WARE, of Salem, S. D., was received as a delegate from the South Dakota Medical Society and Dr. G. F. WEIR, of Fargo, N. D., as a delegate from the North Dakota Medical Society.

The thanks of the Society were voted to the Mississippi Valley Medical Association for its invitation to attend its meeting at Louisville, Oct. 8 to 10, 1890.

After the reading of the President's address the general session was adjourned to Friday morning.

In the absence of the President and Vice-President, the Society was called to order by the Secretary at 10 A. M. Friday. The Committee on New Members reported, and their report was accepted, and the gentlemen recommended were elected members of the Society. [Their names will be found in italics in the roster at the back of this volume.] Adjourned.

The Society was called to order at 4 P. M. by the President.

The Committee on Nominations of Chairmen reported the following names and the nominations were confirmed by vote of the Society:

Practice of Medicine—A. T. CONLEY.

Surgery—E. C. SPENCER.

Obstetrics and Diseases of Children—A. G. STODDARD.

Gynæcology—W. A. HALL.

Therapeutics and Materia Medica—E. D. KEYES.

Nervous Diseases—W. A. JONES.

Pathology and Physiology—G. A. RENZ.

Medical Jurisprudence, etc.—J. H. DUNN.

The Acting Treasurer, Dr. WITHERLE, made the following reports for 1888 and 1889. There was no treasurer's report last year, owing to Dr. SHEARDOWN'S illness:

S. B. SHEARDOWN in acct. with Minn. State Med. Soc.

	Dr.	
To bal, on hand June 22, 1888	$1,048.29	
To amt. received for initiations	140.00	
To amt. received for annual dues	400.00	
To amt. received for delinquent dues	223.00	
		$1,811.29

	Cr.	
By paid H. M. Smyth Printing Co...	$ 295.40	
" Postage Transactions	30.00	
" Secretary's salary 1887-8	100.00	
" R. O. Beard	25.00	
" A. E. Senkler expenses Exec. Comm.	37.00	
Bal. due the Soc. June 21, 1889	1,323.89	
		$1,811.29

Bal. due from Dr. Sheardown June 21, 1889		$1,323.89
By cash received J. M. Sheardown...	$ 200.00	
By cash chks. found in Dr. Sheardown's books	9.00	
Bal. due the Society June 19, 1890	1,114.89	
		$1,323.89

C. B. WITHERLE in acct. with Minn. State Med. Soc.

	Dr.	
To amt. received for initiations	$205.00	
" " annual dues	354.00	
" " delinquent dues	120.00	
To cash received from J. M. Sheardown	200.00	
To cash, chks. found in Dr. Sheardown's books	9.00	
		$888.00

	Cr.	
By paid H. M. Smyth Co. including postage	$428.16	
" Secretary's salary 1888-89...	100.00	
" A. Sweeny for State Board Med. Examiners	200.00	
" F. A. Dunsmoor, expenses Exec. Comm.	23.71	
" postage and stationery Sec'y. and Treasurer	10 70	
" D. C. Patterson, Rush monument fund	25.00	
Bal. on hand June 19, 1890	100.43	
		$888.00

Dr. R. J. HILL moved that the sum of $1,114.89 still due the Society from Dr. SHEARDOWN'S estate be voted to the estate as compensation for the long and valuable services of Dr. SHEARDOWN to the Society. Dr. EMERY moved as an amendment that a committee be appointed to investigate the matter, reporting next year. The amendment was carried.

The Society listened to the reading of the Annual Essay by Dr. J. W. ANDREWS.

Dr. ANDREWS presented an invitation from citizens and physicians of Mankato to hold the next annual meeting at that city. After discussion it was moved that the Society meet at Mankato, and the motion was lost, twenty-six voting for and fifty-three against meeting there. On motion of Dr. BEARD, the thanks of the Society were unanimously voted to the citizens and physicians of Mankato for their cordial invitation.

The Society then proceeded to the election of officers. The elections in all cases were unanimous, and the names of the elected officers are shown on page 2 of this volume.

The new President, Dr. BEEBE, was called to the chair and thanked the Society for his election.

The Society then adjourned to meet in Minneapolis on the third Wednesday of June, 1891.

Digitized by Google

COMMITTEES.

THE FOLLOWING APPOINTMENTS HAVE BEEN MADE BY THE PRESIDENT SINCE THE MEETING OF THE SOCIETY:

Executive Committee.

A. W. Abbott, H. E. Holmes, F. Allport,
H. H. Kimball, F. Dunsmoor,

Committee on New Members.

C. H. Hunter, W. S. Laton, A. Shimonek,
T. McDavitt, W. Courtney.

Committee on Necrology.

Talbot Jones, R. O. Beard, W. J. Mayo,
B. J. Merrill, J. A. DuBois.

Committee on Finance.

Park Ritchie, C. F. McComb, N. S. Tefft,
N. K. Whittemore, J. H. Stewart.

Special Committee on Finance.

J. B. McGaughey, F. Staples, J. W. Andrews,
G. F. French, A. E. Senkler.

Committee on Publication.

Ignatius Donelly, Jr., Wm. Davis, E. C. Spencer,
C. E. Bean, C. B. Witherle.

Digitized by Google

PRESIDENT'S ADDRESS.

J. H. DUNN, M. D.

Ladies and Gentlemen:

We are again assembled at the beginning of the last decade of an eventful century; an era rich in discovery and material advancement. Many useful sciences have had their birth and most of the natural sciences and the useful arts which spring from them have multiplied their development with each of its decades. The power of muscle has been outdone by steam and steam is being eclipsed by electricity. In a scientific and material sense the progress of our age totally eclipses that of all preceding times.

Has medicine kept step with the foremost in the march of progress?

The art which we profess, ancient as history itself, always liberal and in the van of such progress as the spirit of the times admitted, had made but slow and fitful advances until the scientific trend of modern thought rendered our recent strides possible. But none can deny that discovery and progress in the great field of medicine during the past generation has, to speak modestly, kept full pace with that of all branches of applied science, even those which have changed almost as by magic the phases of the business and the social world, yet it may be questioned whether the practical benefits to the masses have been correspondingly great, since the training of medical men has during this period advanced but little.

How insignificant are the wonders and the benefits of the telephone to humanity as compared with anæsthesia! How do the greatest feats of engineering compare with the conception, development, and I may say approximate perfection of ovariotomy? What is the magical transformation of electrical energy in comparison with antisepsis? If Edison transforms this energy to heat, power, and light, Apostoli applies it to the dissipation or palliation of tumors, and Nitze and Leiter convey the electric light into the stomach, urethra, bladder and other cavities, while a host of others adapt it to a great variety of medical and surgical purposes. What achievement of modern times outranks the diagnosis, location and removal of tumors of the brain? What recent discoveries in astronomy rank with those of Koch, Pasteur and others in bacteriology? The magical development of land and ocean traffic are prosaic when parelleled with the story of pathology during our own time. The new drugs, the more exact knowledge of old ones, the discovery of the more powerful, exact and palatable alkaloids which add to human comfort or safety, are not eclipsed by the advances in practical chemistry, despite the puerile cry of some for specifics. Why lament the departure of false specifics, more than that of their congeners the ghosts and the miracles? If clinical medicine, while doing much to alleviate suffering and aiding natural processes has done little towards specific cure, it is not a small gain to have done away with and shown the worse than folly of the fetisch use of drugs. We have reason to hope that these fetisches will be yet superseded by real cures discovered in the further researches in physiological chemistry. The discovery and cultivation of specific microbes has but given us the starting point, and chemistry, physiology and biology may yet give us the antidotes for their ptomaines. What bacteriology, pathology and the scapel have done for surgery, bacteriology and pathology, supplemented by physiological chemistry may yet do for medicine. Yet is our knowledge of the origin and natural history of disease, though just entering upon a stage of rapid development, less creditable and exact than the science of agriculture or of sociology? Time forbids more than the briefest mention of a few cardinal medical advances within the memory of some of our members.

Every one here present may, too, with pleasure bear testimony that no names give greater lustre to the pages of recent medical history than those of the American profession. Handicapped in some directions by the disadvantages incident to a young and wealth-acquiring community, it has in others added its full quota of medical discoveries to the grand progress of the medical world.

To recount the advances of our art during the past century, the last decade or even the current year were a tedious as well as useless task, but it may safely be assumed that no year is now passing without beneficent and profitable additions to our stock of knowledge in every department of medicine; even years like the past, notable for no great epoch-making discoveries are none the less years of useful research, in which old and new dicta are further confined or exploded; necessary periods following the harvest when the wheat is separated from the chaff.

If recent medical progress in general has been gratifying and commensurate with the great expectations of our time, we have also the greatest reason for congratulation that the professsion of Minnesota has taken an eminent position in the front of medical progress. From an early day, leavened with men of the noblest type, the profession of this state has steadily advanced to an admirable elevation, and as those accessories and opportunities which are largely the growth of time appear, must occupy a position second to none in the United States or the civilized world.

Among the evidences of our progress during the

Digitized by Google

past decade, I beg to remind you that our profession is yearly being recruited with a higher grade of scholarship, with more men of scientific instincts and aspirations. Scores of our practitioners have supplemented their home clinical advantages with additional study in the best foreign medical centres. Multitudes are yearly taking addendum courses in the many excellent post-graduate schools of this country.

Ten years ago special medical talent was largely sought in eastern centres and our real specialists consisted practically of two or three oculists; to-day the highest medical talent in every department may be secured within our own borders, and every branch of our art is represented by from one to a score of specialists, many of whom are recognized at home and abroad as authorities in their departments.

While an increase of medical schools is not usually regarded as of good prognosis, we find consolation in the fact that both of those within our state, despite local cavil, are of a higher grade than the average of the country, and demand more of their students than any, excepting only two or three, of the more than one hundred medical schools of this country did when I graduated in 1878. The medical department of our State University has extended its term to eight months.

The work of many local and auxilliary medical societies, such as the Ramsey County, the Minnesota Academy of Medicine, the Minnesota Valley and numerous others attest the improving *esprit de corps*, higher literary and scientific aspirations and attainments, the higher grade of practical work achieved by the Minnesota profession, and admonish the State Society to look to its laurels.

A perusal of the transactions of our Society for the past ten years will show I think a decided improvement; at least a transition from the crude and rather amusing "report," consisting in some instances of an inventory of the year's most ordinary business, to an attempt to do more useful and scientific work. It must, however, be confessed that our transactions still do us but small credit. The stranger who should judge the Minnesota profession by the scientific work of this Society would be a much misinformed man.

With a prospect of the great medical centre of the Northwest in our midst, we can no longer afford to let our State Society proceed with such inefficient work. All feel that the fault is rather with our methods than with our talents. It is imperative that we so revise our organization that our transactions may reach the light of day, and may reflect something of the real scientific and literary spirit of our time and our profession. It would seem that a considerable consolidation of our now too numerous sections, perhaps a three days' session, but surely a much greater restriction of the lines of investigation by chairmen, and an arrangement whereby certain definite topics of great interest may be briefly presented in their various lights and ample time devoted to discussion, were a consummation greatly to be wished. Next to the social functions of medical societies it appears to me that the free discussion of current topics is most valuable, since in our time it is often more pleasant and profitable to read a paper in print at one's leisure, than to listen to long or detailed effusions in the crowded session. The personal experience and opinion of such a body of men, and the infectious enthusiasm of personal contact with fellow-workers is more valuable than the most elaborate article. I believe that it is very desirable that some change in our organization and plans of work be effected at this session.

In a time of profuse and cheap journalism, when we are nearly deluged with medical literature of every grade, much of it of little honor to our calling, we have cause for congratulation that one of the brightest and most elegant little journals of the country bears the standard of the Northwestern profession. After many years of discouragement since its inception in 1870 by its founder and present editor-in-chief, with an interregnum from 1874 to 1881, it has grown to a creditable and representative journal, prized by the whole profession of the Northwest at home, and generally respected and quoted abroad. Its pages fairly index the progress of matters medical in our state during the past few years.

But the chief glory of medical progress in our state, that which should give every member of the profession a just pride is the results achived by the Minnesota Medical Practice Act of 1887. These results mark an epoch in the medical history of the United States, reflect great honor upon the Minnesota profession, and are of more practical benefit to the public of the Northwest and in a measure to the whole country, than all the discoveries in the medical sciences during this period.

The medical sciences had been developed with wonderful rapidity during the later part of this century and had reached a degree of perfection out of all proportion to the practical achievements of our profession. We were wont to complain that medicine is an inexact science, yet with all its imperfections it is tenfold more scientific than many of the instruments through which it is applied. *Pari passu* with all the wonderful discoveries in all its sciences we continued to apply this wonderful aggregation of all the modern sciences, to place this universal knowledge applied to the care of private and public health, through a profession, a large fraction of which is without scientific instinct or training. Men direct from the plow, the dry goods counter, the blacksmith shop, or worse still from the ranks of illiterate idleness, were after 40 weeks attendance upon a heterogeneous mass of lectures, arranged chiefly for the material benefit and glory of the lecturers, turned

Digitized by Google

upon the public to which they often made the falsest representations. We complained to a public which failed to sympathize with a code of ethics that heaped anathema upon homœopath and Thompsonite but declared this eminently regular. The code which draws its lines upon dogma, and neglects reason and science can but fail before the public. The only line of demarcation between the quick and the slough should be science, decency and honesty; such a line would it is true lop off the irregulars, but what an inroad it would make upon the regulars! This state of affairs had been going on decade after decade; while medicine and surgery had been revolutionized time and again, making more advance in a generation than in twenty-five centuries before, medical education in the United States made no appreciable advance. Conventions of college professors, high-sounding platitudes of Medical Associations and what not, left the disgusting subject where it began, if indeed the requirements did not recede, as new medical schools born of hope of commercial or professional emoluments, or of the unaccountable folly of professors with more ambition than head, entered the lists of professional dishonor.

It is perhaps true that public sentiment had begun to move some of these institutions to higher aims, but the lever which first perceptibly moved the foul incubus was the Minnesota Medical Practice Act of 1887, and the efficient labors of the Board of Examiners thus created, to whose energetic secretary the gratitude of the profession and the public is in no small degree due. The effects of this Act upon the profession at home is shown in this, that ten years ago a horde of the most disreputable confidence men infested this state, professing to be specialists from the greatest medical centres of Europe and America, swindling the people of their health and money until tardy exposure came when they moved on to new fields and repeated the performance. Disreputable men, even escaped convicts, scorning to spring from our own lax schools and professing to be graduates of Edinburgh, the Ecole 'de Medicine of Paris, the University of Vienna and other institutions whose seals are known to carry weight, duped the people for a few months until their infamous character induced them to move on, soon to be followed by others of the same feather but different form. Today this is all changed. These medical confidence men are almost totally barred out. More respectable and honest but nearly equally as useless were the large number of young medical men with which our ranks were largely recruited, fresh from the lists of untrained and unlearned labor, with forty weeks on the benches of more or less chaotic, didactic lectures, bearing bombastic sheepskins, which by a keen sarcasm were in a language which scarce one in ten could read. Some of these have by hard study and addendum courses developed into very good practioners, but at what a loss to themselves and to society. How much better physicians they might have made with adequate training. In the three years since the enactment of this law—and the examinations are open to the world to show that they are as simple and rudimentary as the most liberal could desire—179 have knocked at the door for entrance to the profession; the 110 who have been admitted include many who are already honored for their skill and learning, while few if any are a disgrace to their profession or the communities in which they have settled. The answers of many of the 69 rejected would disgrace a layman of average education and intelligence, and it must be remembered that the more ignorant, through fear of failure, have not attempted to effect an entrance. The same rule which has repelled the ignorant has attracted the highest class of men, who embrace with welcome the opportunity to establish their superior qualifications, glad to settle in a community which distinguishes between the savant and the pretender.

As beneficent as are the local effects of this act, they are insignificant in comparison with their ulterior effects. Since its passage, Montana and North Dakota have adopted identical laws, and Washington state one substantially the same. Inquiries and correspondence with our Board from all parts of the Union, and especially Southern states, indicate the awakening of interest in this matter in all quarters. The American Medical Association last year appointed a committee to formulate an uniform law and to advise its adoption in each state of the Union. That committee has chosen the Minnesota Act as the highest type of medical laws for the regulation of practice.

Yet more remarkable during the past year, thirty-two medical colleges have raised their standards so as to comply with our law. Verily the "earth do move" when an American medical college actually raises its standard. The Augean stalls are being cleaned. Our Board is the Hercules which has first left a marked impress upon the unhygienic edifice.

Gentlemen, by this achievement the Minnesota profession have done themselves more credit and the public more practical good than all the discoveries of the medical world in those three years. Of what utility to the masses are further medical discoveries, while so many of our practitioners are unable to give them the benefits of what we now possess? Is it not shameful that the most powerful opposition to this good work comes from our own ranks? chiefly indeed from those engaged or interested in medical schools.

In 1876 the venerable professor of practice in a prominent western medical college, one which boasts thousands of graduates scattered throughout the Northwest, unblushingly announced that two twenty-week lecture courses we ample training for a medical man, and that indeed many men

Digitized by Google

of good memory could prepare in one course! That the repetitional plan was better than the graded course. That European students in from nine to fourteen graded courses learned less than our own in two. Today he dare not reiterate such nonsense under penalty of reproof from his own students. Strangely shameful and astounding utterances! It is not surprising that his lectures dealt more with "the homunculi," the "bastard sons of Thompson," salacious stories and ludicrous similitudes of bacteria, and big Indians with big tomahawks, than with pathology or therapeutics.

Men of his ilk still prate mildly of "bugologogy," still declare that the earth does not move, and that medicine has made no advances during the century (and it certainly would make none if they could prevent it), still assume the air of the medicine man, yet complain that the public runs after quackery with malice aforethought, still talk sagely of ethics by which they love to try their brethren, not themselves. They are examples of atavism—reversion to a former type—a type out of joint with their times.

In any attempt at the orientation of these or the many other problems which fall to the jurisdiction of such societies as ours, we should not forget that recent years have wrought wonderful changes, not alone in the social, political and business worlds, but in every department of thought; nay it is even claimed with much plausibility by a recent writer (April *Forum*) that human nature and human passions are undergoing notable evolution. Mutability is a trite property of mind and matter, but tbe speed and degree of change have never been so overwhelming as in our time and country. Medical matters are in nowise an exception in this regard.

These matters must be studied in the light of the "Genius of the Hour which sets its ineffacable seal upon all labors."

"No man can quite emancipate himself from his age and country, or produce a model in which the education, the religion, the politics, the usages and arts of his time shall have no place. Though he were never so original, never so willful and fantastic he cannot wipe out of his work every trace of the thoughts amidst which it grew." Emerson.

The medicine of the future is to be scientific in a degree beyond all comparison with the past, when around a small amount of inexact science was grouped an infinitude of dogma and opinion. Today the part of medicine which we most esteem and value is strictly scientific; the amount of opinion and dogma, though still large is not greatly respected by anybody. It is simply used tentatively on the plea that it might be of use. In addition to the benefits to suffering humanity, from such a consummation will also flow greater peace to quarrelsome doctors. Science is tolerant and peaceful; opinion is intolerant and quarrelsome, even vicious; it burned heretics We often carp at and complain of popular ignorance. Whence have the people derived their medical knowledge? They derive it from professedly medical sources. Quite largely from quacks, but often a very vicious article is derived from quite regular sources. Complain not of popular ignorance while men of apparent high standing advise parents not to attempt the rectification of club-foot until the child has learned to walk, and endless other equally pernicious tuition.

The untutored practitioner is no longer the benign individual of a former generation. We have put into his hands double-edged tools with which he is ready to open up the joints, the abdomen, the chest, the brain. We have given him the small and tasteless pellets of the most potent alkaloids, in-so-much that many a professed dilutionist unfamiliar with drugs has given an overdose while dabbling in medicines. In surgery the pupil is no longer a dextrous follower of the master, but a practical scientist who should not only have a number of comparatively exact sciences at his command, but requires scientific training and instinct.

In medicine, with our ever increasing duties to the public aside from private patients, the demands for scientific knowledge and training are imperative. The untrained and uneducated medical man is no longer simply a useless member in a community, he is a menace to the public health; he is no longer passively useless, he is actively dangerous. There is no longer the excuse of a need of more medical men to supply a suffering public. We now have three times as many medical men as the best interests of the community demand. The public would be more benefitted than the profession by a reduction in the number by one-half. The argument that education alone will not make a good practical medical man is no longer worthy of consideration. More than education is undoubtedly required, but in the future a thorough scientific training is a prime necessity, and there will be enough to select from when this is made a necessary qualification. We can no longer prepare men to adequately practise the medicine of our time in forty weeks. Given a student of good preparatory education, with a thorough scientific training, be he never so brilliant it will require three or four years of diligent application to ground himself in the elements of the medical sciences of the day. He will then fall short of being a practical physician, but he will at least have the groundwork with which to make his experience useful.

Digitized by Google

ESSAY.

J. W. ANDREWS, M. D.

ECLAMPSIA.

Mr. President and Gentlemen of the State Medical Society:

This is a very rare disease. I presume at least twenty-five per cent. of the physicians whom I this morning address have never had a case of puerperal eclampsia in their private practice. Dr. Lusk, in his valuable work on obstetrics, says that in the city of New York during a period of ten years, out of two hundred and eighty-four thousand (284,000) child-births there were four hundred and eight (408) deaths from puerperal eclampsia; and as the death-rate is always very large in this disease, the same author estimates that puerperal eclampsia occurs about once in five hundred pregnancies. But because of the terrible condition to which it subjects its victims, the gravity of the disease and its fatality, it is as important to the physician as it is rare with the lying-in woman. It is the most fatal of all puerperal diseases and in gravity heads the list. No race or country is exempt from its ravages. The woman who lives among the orange groves of California is as liable to an attack of puerperal eclampsia as is the woman who lives under the shadow of Cape Horn or in the black fogs of old London. Neither does any condition of life offer immunity from it. She whose diamonds sparkle under the dazzling rays of an arc electric light or whose silk trail rustles over the downy softness of the velvet body-Brussels, and she whose arduous round is daily completed under the dim rays of the tallow dip or whose tattered petticoat sweeps the uneven surface of a puncheon floor alike become victims to this terrible disease. One condition, however, must always be present in every woman, and that is pregnancy.

CAUSES.

Prominent among predisposing causes is disease of the kidneys (I mean disease existing before pregnancy), tumors in the region of the kidneys or ureters, the first pregnancy. About eighty per cent. of cases of puerperal eclampsia occur in primiparæ. No woman who has disease of the kidneys should be allowed to become pregnant, and if she does her physician would be almost justified in producing an early abortion, for the chances would be very much against her carrying a child to full term without having puerperal convulsions. The chief reason why the primipara is more subject to puerperal eclampsia than the multipara, is because the skin, abdominal muscles and other distensible parts distend less easily in the primipara than in the multipara, and therefore the gravid uterus is pressed more firmly back on the kidneys and ureters, thus causing renal insufficiency. Chief among the exciting causes are a toxic condition of the blood resulting from renal insufficiency, pressure on the pelvic plexuses of nerves, and cerebral congestion.

Many are the fine-spun theories of the causes of puerperal eclampsia, both predisposing and exciting, but the careful observer must conclude that it is the expression of a toxic condition of the blood, resulting from functional or organic disease of the kidneys or from obstruction of the ureters. It is not necessary to adhere absolutely to the uræmic theory which some authors have said is false, giving as a reason that urea injected into the blood of a dog or rabbit does not always induce convulsions, even if injected in large quantities, nor is it necessary to prove the ammoniæmic theory, that is that the urea is converted into carbonate of ammonia in the blood and this is the peccant matter. I repeat that puerperal eclampsia is the expression or the eruption of toxæmia conditioned upon disease of the kidneys, either organic or fuctional, or upon obstruction to the ureters.

I once had a patient, age about forty-five, who had cancer of the uterus which finally extended to the pelvic cellular tissue, encroached upon and gradually choked off the ureters, and as a result the kidneys could not perform their function and renal insufficiency followed. The woman was seized with prodromata followed by convulsions and these followed by coma and death. I will not say that these prodromata simulated puerperal convulsions, for that would imply a resemblance merely, whereas they were identical in every particular. Post mortem examination revealed the following facts: the ureters above the cancerous tissue were greatly dilated, but otherwise normal; the same was true of the pelvis of the kidneys, while the kidneys themselves and the urine were normal. Now these convulsions were caused by retention in the blood of a toxic principle, either urea, carbonate of ammonia, creatine or creatinine or other products of disassimilation which are normally eliminated by the kidneys; or by all of these toxic principles combined. So exactly is the case of a woman suffering from puerperal eclampsia; the cause is renal insufficiency.

SYMPTOMS PRECEDING THE ATTACK.

I remember in my school-boy days learning that a volcanic eruption was always heralded by certain premonitory and unmistakable signs, but that often the explosion so quickly followed these signs that there was but little opportunity to prepare against the terrible effects of the burning lava. So it is with puerperal eclampsia; we find the patient presenting œdema of the face, labia majora and feet, and if we examine the urine we will find it scanty in quantity, probably low in specific gravity and will find it containing albumen, casts and sometimes pus. Later our unfortunate patient complains of dizziness, loss of memory, headache, diminution of vision, nausea,

Digitized by Google

sometimes vomiting. The books describe this feeling in the stomach as nausea. In my practice I have found this to be a peculiar nausea, one that my patients have described as a gnawing pressure in the stomach. This last symptom has been prominently present in all the cases of puerperal eclampsia that I have ever had, and has been more complained of by my patients than any other symptom. So certain and definite are these premonitions, that culpable is the physician, who being called to a case of childbirth and finding them present does not at once use strenuous means to prevent or ameliorate the impending outbreak; but however skillful he may be he will probably not succeed, but the black, ominous clouds gather thicker and faster, until, as just before an approaching cyclone there is a dead calm, our patient ceases to speak, she lies perfectly quiet in bed, she does not move a muscle, perhaps falls into a quiet sleep; fellow-physicians, do not be deceived by this delusive truce, for brief indeed is this dead calm and restful sleep. The storm bursts forth, and our patient is precipitated into the most terrible, the most dreadful, the most horrible condition that it has ever been my painful duty to behold in woman.

THE ATTACK.

While contemplating this essay, I was one night called to the bed-side of a woman who was having a very hard and fatal attack of eclampsia, and I here record the manifestations of the convulsions exactly as they occurred in this woman. First, the muscles about the mouth, especially the right risorius, began to contract clonically; next the eyelids opened and closed in quick succession; now the eyes begin to move irregularly and then the muscles of the face, and now the convulsive seizure is transmitted to the muscles of the neck, arms, hands and so on with almost the rapidity of an electric current, until the whole body is writhing in one vast convulsive seizure; the tongue protrudes from the mouth and in spite of my efforts to prevent is badly bitten; bloody froth oozes from the mouth and the face becomes livid; the twitching diminishes until it is lost in stertorous breathing and coma, and the patient sweats profusely. In about fifteen or twenty minutes she opened her eyes, looked wildly around with a dazed, half-concious expression, only to be in another moment plunged into a more terrible convulsion. With little variation and increasing severity the cycle of convulsive manifestations continued from 11 P. M. till 6 A. M., when the convulsions ceased; the temperature rose rapidly, and at 9 A. M. stood at 107°, and at about 10 the patient died. Sometimes the eyelids would be the first to announce the commencing of the convulsions; they would open and close like flashes of lightning.

Now, what I have related here in reference to my own recent case of eclampsia, which facts were gathered by a personal and careful observation of my patient at her bedside, is true, with a little variation, of every case of puerperal eclampsia.

TREATMENT.

Prophylactic treatment is always important, but never more so than in this disease; if we wait until the convulsions are upon us curative treatment is almost useless; we can then only palliate. I would urge upon every physician who is engaged by a pregnant woman to attend her in childbirth, to commence at least as early as the fifth or sixth month and examine the urine of his patient at least every month, and oftener if the patient be in any degree œdematous. I would recommend, too, that he not only examine the urine chemically, but microscopically, for we sometimes find casts in urine in which we are unable to detect any albumen. Of course it is necessary to know the quantity of urine passed in the twenty-four hours. Now, finding evidence of kidney disease or renal insufficiency, we should lose no time in placing our patient upon a thorough and systematic course of prophylactic treatment. Of first importance is the regulation of the diet; if toward the latter end of pregnancy we find our patient suffering with symptoms of renal trouble, a wise plan is to restrict her to a milk diet. And now, since the offending material is a retention in the blood of the inorganic excrementitious material, notably the urea, the next indication is to keep the blood as free (down to the normal standard) from these as possible; this we must do by elimination. If upon examination I find œdema of the extremities, face and labia majora, the urine pretty well loaded with albumen and containing casts, I do not hesitate to commence at once the administration of eleterin; I usually give 1-20 of a grain, every night. With this I get a very good hydrogogue catharsis, and I have yet to get the first unpleasant symptom from this drug given in these conditions. In addition to this I have my patient drink a quart of water daily, saturated with bitartrate of potassium, acidulated with one or two lemons sliced and put into it. If my patient is on the milk diet, I like very much to have her drink freely of Vichy water. But, if by our prophylactic treatment we are not able to carry our patient safely through to the termination of pregnancy and labor, or are called (as is often the case when too late to use prophylactics and are compelled to minister to our patient in the dark hour and through the terrible ordeal of puerperal eclampsia convulsions, then our line of treatment must be very different. We cannot now administer to any advantage diuretics, and it is almost as useless to administer cathartics; neither can we stand with folded hands and trust to nature, for if we do, our patient soon will have passed through the dark valley and shadow of death. Our treatment must be active, prompt and efficient to give us any hope of a successful issue. It has been my practice, the past few years, when called to a patient suffering with puerperal eclampsia, to administer at once an hy-

Digitized by Google

podermic of morphia, 1-4 to 1-3 of a grain, and then to give sufficient chloroform by inhalation to control if possible, the convulsive movements, and as soon as my patient is quiet a sufficient length of time to allow me to do so, I bleed her freely.

I am of the new school and do not bleed much, as I usually endeavor to meet the indications by using some other therapeutic means, but in puerperal eclampsia I believe in bleeding early and freely, and I believe the physician who tries to carry his patient through an attack of puerperal eclampsia without bleeding is culpable. By venesection we lower the arterial tension, diminish the irritability of the vaso-motor and convulsive centers, and favor absorption, and thereby render our patient more susceptible to other remedies.

PRACTICE OF MEDICINE.

J. W. BELL, M. D., CHAIRMAN.

CHAIRMAN'S ADDRESS.

THE ETIOLOGY OF PHTHISIS PULMONARIS.

While statistics indicate that pulmonary phthisis causes more than one-seventh of the entire mortality of the world and fully one-half of all deaths between the ages of 15 and 35, as well as more than 50 per cent. of all prison mortality, no further apology need be offered for calling the attention of the section to the subject.

Pulmonary phthisis prevails in all countries and races; no climate, latitude, occupation or combination of favoring circumstances affords perfect immunity from it. In this brief paper the old and comprehensive term of pulmonary phthisis will be used, not synonomously with pulmonary tuberculosis, but as including the same, the unity of phthisical lesions being still an unsettled question, and until such time as it is settled, I plead for a continuance of the term. The etiology of pulmonary phthisis is so blended with its pathology as to be almost inseparable; hence if I trespass on pathology, it will be in the attempt to make clearer the etiology. We find this disease the joint product of, first, predisposing, second, exciting causes. The predisposing may all be embraced under predisposition, inherited or acquired.

The predisposing are assuming more and more importance, from the fact that the supposed exciting causes appear impotent to produce the disease without their presence and aid.

That phthisis propagates itself in many families from generation to generation, is unquestioned; as to the method of propagation, some diversity of opinion prevails, some claiming a direct transmission of the specific virus or organism, others denying. The theory of direct transmission has its most enthusiastic exponent in the person of Baumgarten, who believes that a child may be born with tubercle bacilli in some of its tissues and that they may remain inactive for years or throughout life; others believe that transmission occurs: first, through the semen or ovum; second, through the placental circulation.

Transmission on the side of the father is supposed to occur at the moment of conception by means of spermatozoa containing bacilli. This hypothesis is based on the fact that bacilli have been found in the spermatic tubules of a few tuberculous men. Maternal transmission at the time of conception must presuppose an ovule originally infected with bacilli, or becoming infected during its passage. The supposition that the bacillus may be transmitted from the mother by way of the placental circulation appears more plausible. This has been shown to occur in relapsing fever, variola and syphilis. Jacobi mentions an instance, the only authenticated one occurring in the human family of which I can find any record. A phthisical woman gave birth to a seven-months' fœtus which lived but a few minutes, the liver, spleen, pleura and peritoneum showing milliary tubercles. Epstein's two hundred babies of tubercular mothers yielded negative results.

In order to infect by way of the placental circulation we must grant the presence of bacilli in the maternal blood, a condition not proven except by a few fortunate demonstrations, these probably resulting from preparatory colonization of bacilli in some organ. If bacilli enter the body by this route, we should find frequent evidences of them in the liver, but such is not the case. Without further reference to theories or evidence, we may safely conclude that the infective germ itself is not inherited, but a predisposition, consisting of the descent or transmission of peculiar vulnerable or degraded cells, resulting in vulnerable tissue construction which invites and favors the action of exciting causes, in the form of bacilli or low-grade inflammatory affections; hence by hereditary predisposition is meant unsoundness of original cell and tissue construction at birth, with especial reference to the respiratory and circulatory organs.

We are all familiar with the clinical picture these unfortunates present, in the form of the phthisical diathesis or habit, the slender body and limbs, the long, flat chests, the semi-paralytic thorax, enclosing the small, often imperfect heart and vulnerable vessels engaged in circulatinga depraved fluid, the tendency to hæmoptysis and epistaxis, the frequent attacks of laryngeal and bronchial catarrh.

Statistics vary as to the frequency of inherited taint. Thompson, from a careful investigation of the Brompton Hospital records, found heredity present in 48 per cent. G. Jor was able to prove it in 55 per cent. of the patients in the Christiana

Digitized by Google

Hospital. The daily experience of all medical men corroborates or swells this percentage. No more conclusive evidence can be offered than the history of eighty families of phthisical parentage given by Thompson, consisting of 385 children of whom 194 became phthisical, 37 dying in childhood, leaving only 154 exempt.

The London *Lancet* truly says: "The attempt of continental writers to minimize the hereditary factor in the causation of phthisis is but a temporary swing of the pendulum," clinical evidence being too conclusive. It should be borne in mind that a phthisical vice of constitution may be inherited by the children of the aged, intemperate, cancerous, syphilitic, and especially prone are the offspring of consanguineous marriages.

The acquired predisposition consists in lowered cell and tissue resistance due to an insufficient supply of the needs of growth and function, arising from the many weakening influences surrounding human life, such as insufficient clothing, food and sleep, lack of pure, fresh air and out-door exercise, and imperfect convalescence, the more active being sedentary occupations, robbing the individual of fresh air and out-door muscular exercise, thus by weakening cell and tissue resistance, opening the portals for the entrance and action of exciting causes.

The effects of many of these baneful causes can be best studied in the inmates of prisons, asylums, convents and similar institutions.

Ziemssen makes the startling statement that over 50 per cent. of the Sisters of Charity, nurses in the Munich General Hospital, die from pulmonary tuberculosis. This statement is offered as an argument in favor of contagiousness. It would appear a stronger argument in favor of acquired predisposition. We can readily understand why even so large a mortality as indicated by Ziemssen occurs. First, a certain, perhaps quite large percentage of these very young ladies inherit a predisposition to phthisis. Second, others have by virtue of their strict religious and preparatory training laid the foundation for what soon becomes, under the baneful influence of hospital work, the vulnerable constitutional condition known as acquired predisposition. Third, the Munich Hospital, being a general hospital, containing but a limited number of consumptives, and these under quarantine regulations, would not offer as favorable opportunities for infection as Brompton, yet Williams claims not more than three or four cases, if any, to have occurred from infection since the opening of the hospital, a period of forty-four years.

Ziemssen's statement of the frightful mortality among the Sisters led me to make an investigation of the subject in the Minnesota hospitals managed by the Sisters.

I learn from reliable sources that during the last thirty-six years but three Sisters connected directly or indirectly with the hospital work had died of phthisis. One, a Superioress, after six years of labor, at the age of 25, her mother having died of the disease; another, a domestic Sister, doing occasional supply nursing, after a period of five years; the third, a domestic Sister, never having nursed the sick or frequented the wards, died after a residence of six years in the hospital. This would give us a low death rate for the most favored occupation, and certainly cannot be tortured into favoring the contagion of phthisis.

From the foregoing facts, and many more that might be cited from the clinical experience of every physician, we grasp the importance of heredity in the form of faulty or vulnerable cell and tissue predisposition. If to this vast army we add the second division, composed of those having an acquired predisposition, we can fully comprehend the frequency of the disease without delegating to it a marked contagiousness.

EXCITING CAUSES.

Having indicated my belief in a tubercular and non-tubercular form of phthisis, I shall have time in this brief paper to call your attention to but few of the clinical and pathological facts favoring this view.

The dictum of the phthisical unitarians "without bacilli, no tuberculosis or phthisis," is no more proven than to affirm that without predisposition no phthisis. Flint affirms that the disease is never produced without the parasite, but on the other hand, if the predisposition be wanting, no matter how great the exposure to the parasite, the disease will not be produced. We may safely affirm that the tubercular or bacillary form of phthisis is always associated with the presence of tubercle bacilli, usually in abundance. The exact causative relation they bear to the disease is not definitely settled, whether they act as generators and carriers of a chemical poison of the nature of the ptomaines, or whether the disease results from parasitic irritation. While their presence serves to explain tubercular phthisis, there still remains a respectable minority of cases which pursue a typical course, giving no evidence of bacilli during life, or tubercle at the autopsy.

Whittaker, an enthusiastic exponent of the doctrine of the unity of phthisis, says, "The tubercle bacillus, the one fixed fact in the pathology of the disease, is more universally regarded as the acknowledged centre around which all the phenomena of the disease must revolve, and all clinical and pathological views not in accord must be relegated as so much obsolete lumber to chapters on history." With the most profound respect for, and a due sense of our great obligation to that class of patient and painstaking workers, whose time is largely spent behind closed doors, engaged in bacteriological investigation, we must confess that the unity of phthisis rests on frail pathological and clinical proof. To a conservative mind another decade

Digitized by Google

would scarcely appear time enough to reach such a positive conclusion. A healthy conservatism, while it may appear to impede the progress of knowledge, makes that progress more sure. The brilliant discovery of the bacillus tuberculosis by Koch, in 1882, following closely in the direction of Villemin's inoculation experiments, gave a new impetus to the study of the disease; it appeared to be the one thing necessary to solve the much debated question of the nature of tuberculosis. This rod-shaped bacillus, known as the bacillus tuberculosis, is of slow growth, requiring a uniform temperature and having a marked tenacity of life, retaining its virulence from two to four months according to conditions. This microörganism is believed to be present in all cases of tubercular phthisis, in newly-formed, as well as the caseous tubercle, in the catarrhal or caseous exudation, the result of parasitic irritation and consequent pneumonic inflammation. The life of the bacillus within the body is believed to be a brief one; it finds the temperature of the body congenial, for if there be one characteristic of the bacillus determined, it is that it requires a temperature between 82° and 108°, and a certain degree of moisture as well as a congenial soil for its development; that healthy lung tissue antagonizes and resents the invasion of these parasites cannot be questioned; how this protection is afforded, whether through the protective influence of the phagocytes, is an open question. The bacilli may gain access to the body through one of four avenues. 1. Respiratory tract. 2. Alimentary canal. 3. Genital tract. 4. Skin. The first by way of inhalation, being the more common. Having once gained access and lodgment, they may be disseminated by one of three routes: air, lymph or blood channels.

That a non-tubercular form of phthisis exists, would appear in the light of our present knowledge beyond question. That much confusion exists in our text books and literature on this subject of phthisis and its variations, may be seen at a glance by reference to Flint, Loomis, Bristow, Fagge, Powell, Roberts, Delafield and Aufrecht.

Aufrecht says he cannot understand how medical men can believe that all cases of phthisis are bacillary in their origin, in the face of the pathological changes. This important statement from one who has worked with Koch should have weight.

Much confusion arises from pathologists striving to make a variery of pathological changes fit into one theory of causation. The non-tubercular form includes broncho-pneumonia and lobar pneumonia, which fail to undergo complete resolution as well as interstitial pneumonia and diabetic phthisis.

That we meet cases of broncho-pneumonia in apparently healthy children and adults, pursuing an acute typical course up to the stage of resolution, but failing to undergo complete resolution, passing through caseation and softening, to the formation of lung cavities, cannot be questioned. That these patients have that lowered cell and tissue resistance from either an inherited or acquired predisposition, which we believe invites and favors the lodgment and development of bacilli may be granted, and if true, may not the other known exciting causes produce in these susceptible individuals a non-bacilliary inflammation, ending, as we believe it does, in a form of caseous phthisis?

That we meet with like cases of lobar pneumonia where a portion or the whole of a lung remains solidified, the patient regaining and continuing in fair health, except for the presence of a slight cough and dyspnœa, for a period of years, finally evidences of softening and cavity appear, without the presence of bacilli.

That lobar pneumonia, where it fails to undergo resolution, frequently passes through a stage of slow interstitial inflammation to fibroid phthisis, was long since pointed out by Andrew Clark.

That certain occupations, milling and mining, exposing the individual to constant inhalation of irritative particles, cause a true interstitial inflammation, ending in fibroid phthisis, is clearly proven by Bastians; thirty cases are cited by Reynolds and Fagge. Attention has lately been called to this form of non-tubercular phthisis by Harris, of Manchester, England.

That a peculiar form of non-bacillary phthisis is frequently associated with diabetes, is beyond question.

CONTAGION.

Having pointed out the exciting causes believed to be operative in the production of phthisis in its different forms, I desire to call attention, briefly, to the supposed danger of contagion or communication, in the bacillary form of the disease.

On the announcement of Koch's discovery, the prophylactic measures suggested by the parasitic nature of the disease were at once instituted.

Eight years have elapsed with no appreciable reduction of the death rate. It may be claimed that eight years is not a sufficient length of time to test the merits of preventive treatment. In this connection we may profitably study the course of the disease over a period of sixty-six years in Naples.

In the year 1782 the king of Naples issued the following edict:

First. Physicians must report all cases of phthisis, under a penalty of being fined one hundred ducats.

Second. All phthisical patients must go to the hospital.

Third. Hospital authorities must see that all personal effects are retained.

Fourth. Hospital authorities must frequently renew floors, windows, change and disinfect bedding.

Fifth. Severe penalties will be inflicted on all

Digitized by Google

persons selling personal effects of phthisical patients.

Sixth. Every house in which a phthisical patient dies shall be confiscated and destroyed.

We learn that this law was rigorously enforced from 1782 to 1848 without the least perceptible decrease in the number of cases or in the death rate.

Bolinger has shown that an ordinary expectoration averages about 1,000,000 bacilli.

The average tuberculous patient would thus every day throw out from 30,000,000 to 40,000,000 of bacilli upon the cold, uncharitable world. Any attempt to measure the yearly output would be futile. However we have one source of comfort in the thought that it requires a large number of bacilli to produce tuberculosis in even so susceptible an animal as the guinea-pig.

From the collective etiological investigations lately instituted in England, in regard to phthisis, the committee reported as follows: "If phthisis be a communicable disease it is so only under circumstances of extremely close personal intimacy, such as persons sharing the same bed or room, or shut up in close, ill-ventilated apartments."

C. T. Williams gives the following facts regarding Brompton Hospital, the largest institution in the world devoted to the treatment of phthisis:

The hospital was established in 1846. The ventilation of the building was quite imperfect previous to 1877. The cuspidors of patients were changed twice daily; no attempt was made to disinfect unless the odor was marked. Williams remarks that the deficient ventilation must have led to a large accumulation in the wards of the products of respiration and bacilli. hence there should have been an extension of the disease to the non-consumptive cases, nurses, physicians, clinical clerks, etc., and in only three or four cases could the outbreak of the disease be traced to their residence in the building.

Dr. Victor Edwards,resident physician of Brompton for a period of seventeen years, personally remembered fifty-nine resident assistants, none having died of phthisis; of the head nurses, who slept, each in a ward of fifty patients, one had died of phthisis.

Fraser, during a practice of twenty-three years in a densely settled district in England, never met with a case which argued in favor of transmission from husband to wife, or the reverse.

Bennet, with twenty-five years' experience, gives it as his opinion that if there has been any spread of phthisis by means of contagion, it has occurred extremely seldom.

Bennet's views are corroborated by the daily experience of medical men. The tubercular form of phthisis, or pulmonary tuberculosis, may then be viewed as an infectious disease, having but a feeble contagious or communicable tendency.

CONCLUSIONS.

First. That the comprehensive term of phthisis pulmonaris should be retained, until such time as the etiological and pathological unity of the disease is fully established and corroborated by clinical evidence.

Second. That the variable pathological changes, resulting in consolidation, softening and formation of cavities in the lungs, are not the result, in all cases, of bacillary infection, and hence the existence of a non-tubercular or non-bacillary form of phthisis.

Third. That heredity assumes its importance in the causation of the disease, not by direct transmission of an infected germ, but through the inheritance or descent of degraded, vulnerable cells, which invite and favor the action of exciting causes.

Fourth. That the acquired predisposition, consisting of lowered tissue and cell resistance,becomes a more and more dangerous factor in proportion as over-crowding, over-work and sedentary habits, with insufficiency of pure air and out-door exercise, becomes the rule of increasing population and civilization.

Fifth. That tubercular or bacillary phthisis is but feebly contagious in the ordinary acceptation of the term.

Sixth. That the control or extermination of the disease must come largely through more rigorous efforts to minimize the causes of inherited and acquired predisposition, as well as bacillary infection.

THE TREATMENT OF PULMONARY TUBERCULOSIS.

By C. L. Wells, M. D.

Minneapolis.

Phthisis is a name of ancient lineage and indicates a disease well known to Hippocrates and to all succeeding generations of medical men, upon whose attention and consideration it has forced itself at all times. It is well diffused over the earth's surface, and has increased rather than diminished as the population of the world has become more dense,the mode of life less in accordance with nature's laws and the struggle for existence more intense. Remorseless in its course, the annual harvest of death from this cause alone equals one-seventh of all who die. Made possible by hereditary transmission, it is a standing menace throughout successive generations to those who are derived from tuberculous parents.

Regardless of station or circumstance,it invades alike the homes of the rich, where every comfort abounds, and the abodes of the poor, where the misery of a hopeless disease is made more miser-

Digitized by Google

able by poverty and neglect. Always inspiring with hope, it sends its victims coursing round the world in search of cures, only to make the disappointment more bitter when the curtain falls and death puts an end to the scene.

So familiar are the people of India with famine, that the hollow-eyed and spectral forms of starving men and women excite neither emotion nor comment. Likewise with phthisis, so common its occurrence, so inevitable its results, it has come to be looked upon with indifference and an easy tolerance of its frightful ravages.

It finds its victims in the cradle ere the hapless infant has learned to lisp its mother's name or know the story that has made its life a blight. It finds them in the "sear and yellow leaf," and spares them not when the hand is palsied and "the eye dimmed by the mist of age." The horrors of pestilence, with all its deadly work; the ravages of war with all its fatalities, are truly insignificant when placed by the side of consumption.

It is to the honor of the medical profession that while never Utopian, it is nevertheless always expectant, hopeful, persevering; while meeting with endless embarrassments and disappointments, it is never pessimistic.

No disease has merited or received more general study than phthisis. Yet the defenses that have so far been thrown up against it are everywhere weak and inefficient. The discovery of Koch revived the hopes and rekindled the enthusiasm of medical men and marks an epoch in the history of tubercular disease. The promise then given to an expectant world has not been realizized. Knowledge comes, but its application to the cure of disease offers difficulties that have too often and too long baffled our best-directed efforts. In the midst of all the disappointments that have for generations been the heritage of our profession, the opening lines of Tennyson's "In Memoriam" would seem to have a special and inspiring significsnce:

> "I held it truth, with him who sings
> To one clear harp in divers tones,
> That men may rise on stepping stones
> Of their dead selves to higher things."

The literature of phthisis is voluminous. From the time of Hippocrates to the present hour have been accumulating the writings and investigations and experiments of a long list of observers. Its theraphy is likewise equally large and only measured by the limits of the materia medica. No resumé of all the varied schemes and systems of treatment that have been from time to time applied to phthisis will be attempted. I have neither desire nor inclination to impose such an infliction upon my hearers or myself. To emphasize some of the salient points in its prevention and treatment, and to ask the question whether we have done all in the past within our power, and, in the light of our present knowledge, are doing our whole duty by this large and increasing number of our fellow-beings, is the scope of my paper.

No one familiar with the writings and teachings of our best authorities can but have observed that they have shown but little faith in the utility of drugs in the treatment of phthisis, save only as they may be made to contribute to the exaltation of the nutritive processes and to the relief of special symptoms and condititions that may from time to time appear. So much of a physician's work lies in the immediate attention to the sick that he is in no little danger of forgetting and neglecting his duties in the matter of prevention. Yet it may be said, in a general way that the profession has been thoroughly unselfish in its devotion to preventive medicine, and that it deserves a recognition and appreciation from the public that it has but sparingly received. Phthisis now, in a measure at least, may be looked upon as a preventable disease. The presumption is at least so strong that our efforts in that direction should be pushed with redoubled energy.

That the intermarriage of those derived from tuberculous stock should be discouraged and made odious admits of no discussion. The danger to themselves and to their posterity should be as clearly set forth as possible, and a public sentiment created that will exercise an inhibitory influence over such ill-assorted unions. It is true that little heed will often be given to the medical adviser's warning, for love that laughs at lock-smiths will be undeterred by microbes. It has been within my personal observation to see a pale, anæmic girl married to a man in the last stages of phthisis, whose connubial couch was her husband's death-bed; a young man married to a woman only three months prior to her death from the same disease. Phthisis unfortunately is no bar to precreation, and it is not uncommon for children to be born of parents with well-marked symptoms of the disease. There is, under such conditions, a special danger to the offspring and likewise to the mother, if she be the subject. It is plainly the duty of the physician to point out these dangers of hereditary predisposition that will most certainly surround the offspring, and to make them feel that they are exceptions to the injunctions of the Almighty who commanded his children to go forth and multiply and people the earth.

No consumptive mother should be allowed to nurse her babe. Lactation is inimical to herself and dangerous to her child. She cannot spare this drain upon her system where safety lies in the highest possible nutrition. Her milk is quite certain to be poor in quality, and the danger of infecting her child is real. A mother came under my observation with cough, hectic, night sweats and a considerable consolidation at the apex of the right lung, while still performing the duties of nurse to her six months old child. A child of eleven months had nursed the mother up to the eighth

Digitized by Google

month when it began to deteriorate. When first seen it had enlarged cervical and bronchial glands, cough and a consolidation at the apex of the right lung. It died before the end of the first year. The mother, prior to its birth, had had pulmonary hemorrhages and during the period of lactation had scrofulous ulcers about the neck, was weak, emaciated, and died one year later of general tuberculosis. I cannot but regard this case as one of direct infection of the child by the mother.

The children of mothers then with an hereditary predisposition, and still more emphatically where there are present actual signs of phthisis, should be wet-nursed or artificially fed. The principles of successful alimentation are so well established and so generally understood that little risk is involved in the artificial feeding from birth, when done under the direction of the physician. From this period on to full maturity the physical well being and training of such children should be a matter of constant solicitude. The nursery and the home should be well and everywhere warmed and ventilated, lighted and kept clean and sweet. Dirt is less pernicious than foul air. As early as practicable the child should be carried into the open air and be made to feel the beneficent influences of the sun's rays. As days and months roll on and growth and development proceed, the capacity to do, to appreciate, to enjoy demand larger liberties and more ample facilities for amusement and recreation, and nowhere can the requirements be so fully met as on a warm, dry and sunny playground. So intense this desire, so supreme the happiness of being out of doors on the part of even very young children, that one must feel that it is something more and higher than mere habit; it is instinct. The daily bath with generous friction, the clothing of the body throughout the year in flannel are matters of great importance. as they inure to weather changes and save from "taking cold." With boyhood and girlhood come an awakening of interest in things of maturer years, and we shall find in boating, botanizing, horseback-riding, long strolls in the woods and fields, real work about the home, light gymnastics and sports upon the lawn, the means that energize and increase the power to resist disease.

"Iron-jointed, supple-sinewed, they shall dive and
they shall run,
Catch the wild goat by the hair, and hurl their
lances in the sun."

These children should not see the school-room before they are eight years of age, and, if a choice be possible, that school should be chosen where the soil is dry and well drained, the scenery and surroundings the most varied and wholesome. But for most there is no choice and the public school is the only resource. It is the duty of Boards of Health and the profession at large, to see to it that the public school buildings conform to the requirements of modern sanitary science, even though they be architecturally horrid. Bear in mind that six hours a day for a period of from five to ten years are spent by our children in these buildings, and the importance of the structural adaptation to the best interests of their occupants need not be dwelt upon. While the education is going on it should be directed with reference to future occupation. This should be one embracing the largest measure of out-door living, with the least of the pernicious influence that pertains to our cities. Milling and all dusty trades, type-seting, book-keeping and all confining, sedentary occupations in close, dark apartments are surely fraught with danger.

While the discovery of Koch has placed the matter on a scientific and rational basis, there was previously a wide-spread and pretty well-grounded belief in the communicability of phthisis from one person to another. Although this is true, it is only so in a measure so slight as to excite no alarm whatever, and concerns almost exclusively those who are predisposed to the disease. The source of the infection is to be found in the sputum, and this can hardly be a source of danger save only when in a dry state. Its proper disinfection, therefore, together with the patient's linen and the occupying of separate sleeping apartments, will, it is believed afford ample security. It is to be hoped that no unnecessary alarm on this subject will be excited. The public are unnecessarily and easily panic stricken, and once their fears aroused, the position of the subject of phthisis will be not unlike that of the leper of old. In families where children have died of phthisis and there is reason to believe there still exists in others a predisposition to the disease, no time should be lost, if practicable, in placing the remainder in a climate whose atmosheric conditions offer the largest measure of protection. Yet how often have we seen whole families swept away, one after another perishing in rapid succession, without even a suggestion that some or all might be saved by a timely removal to some more congenial climate. The same old cough mixture does duty all around, as does the same old doctor in the same old gig, the same good neighbors, the same good parson, the same good undertaker, and all in the name of the good God "who doeth all things well."

But in spite of all our efforts in the direction of protection and prevention, the numbers upon whom the blight has fallen are still very large, and to the medical profession they turn for help. A conspicuous part of the work of the last thirty-five years has been the clearing away of false theories, cherished superstitions and errors in pathology and practice; with this general dethronement of accepted doctrines has disappeared the fiction of the drug treatment of phthisis. Twenty years ago Hughes Bennet said of "condensed air, oxygenated atmosphere, carbonic acid, sulphurous and tar fumes and all kinds of substances in a gaseous

Digitized by Google

form, solutions in vapor or spray, astringents and other fluids injected down the larynx and bronchi, the opening of the pulmonary cavity with a view of causing cicitrization, all these efforts," he says, "have been a uniform failure." To these should be added some of the more recent fads, such as the hot air treatment and Bergeon's gaseous enemata. It is pertinent here to observe that there is no longer entertained a belief in the possibility of destroying *in situ* the bacillus of phthisis.

Those remedies that experience has proven to be of service, derive their value not from their specific action but rather from their tonic virtues and their properties as foods. Among these should be included quinine, strychnine, arsenic, iron, cod-liver oil and alcohol. "Alcohol," says Cohen, "to the consumptive, is food." Dependence upon these remedies alone will inevitably end in disappointment and failure. If the subject of the drug treatment of phthisis be thus briefly considered, I may add that, in some of our recent text-books, it is quite as summarily disposed of.

If a spirit of skepticism as regards the use of drugs alone be found to pervade the writings and teachings of our best authorities during the past quarter of a century, there is likewise a manifest and growing faith in the possibilities of the climate-cure of phthisis. Austin Flint, writing in 1867, says, "exercise in the open air, or as I would prefer to say, out-of-door life, is of all measures the most important." Twenty-five years' additional experiment and observation have only emphasized these words, and we can truly say to-day that the climate-cure is the key-stone of the arch upon which rests the whole superstructure of the successful therapy of phthisis. It is not a question of what climate shall be chosen; it is a question of climate! It is not whether a patient shall go to Danos or to Colorado Springs, it is simply whether he go at all! Whether he shall remain in the shop, the counting-room, the factory, the city with its poisoned atmosphere, or go and live in the comparatively aseptic air of the country. The term climate-cure is a relative one. The man who goes from Albany to the Adirondacks, who goes from Lowell to the Berkshire Hills, from the city to the farm is effecting a climate-cure. Dr. Flint has been quoted as saying that the wards of the Bellevue Hospital were a good climate-cure, and it needs not an over-bright mind to see the point of the observation as applied to the anæmic, under-fed inmate of a death-breeding New York tenement, when placed in the cleanly wards of even a city hospital, and given a clean bed in a well-ventilated room, with an abundance of wholesome food. Many patients, unhappily, are too poor to place themselves in the most favored spot, under the most favorable circumstances, but with these even, our best efforts must be put forth to improve their surroundings as far as possible.

In 1886 I sent a patient into the pineries of Minnesota, whose case fairly illustrates the point. It was a case of well-marked phthisis of ten months' standing. There were present all the rational and physical signs of the disease with a large cavity in the right lung. Deplorable as was his condition, he had no means of support save his own earnings. Late in October he started for the woods and landed fifty miles from any settlement. On his journey he slept on the deck of a flat-boat with no protection other than a blanket, and was drenched with rain. After reaching camp he soon began to feel the beneficial effects of his venture. His cough abated and finally ceased altogether; his appetite returned; his capacity to take and digest a full and generous diet was restored; his weight increased and he returned in April in, as he claimed, as good health as he had ever enjoyed and with a healed cavity. No doctor, no drugs, but only a cold, health-giving, aseptic atmosphere!

This case is surely suggestive, as every factor of treatment save that of climate was eliminated. What would be thought of the surgeon to-day, who should daily take his patients into the streets and expose their wounds to the dust-laden air of a city swarming with bacteria? What must be the effect upon tuberculous lung tissue when bathed by such an atmosphere, in the act of respiration, twenty times a minute day and night? The golden opportunity is when the first signs of the disease are apparent. Hope fades with each fleeting week and month. A mistake too often made is to give these unfortunate people to understand that the matter is a trivial one. There is some sort of fear that to know the truth will do the patient harm. They are bound to know it sooner or later and the earlier the better. They are then stronger and better able to face the unwelcome intelligence. They may then be positively cheered with the reasonable assurance of recovery. Realizing the danger, they will consent to undertake a mode of life and treatment that a year later will avail them nothing. Self-denial, separation from home comforts and friends, the giving up of cherished ambitions, will try the fortitude of even those who are at the flood-tide of their strength. To tell these patients that their hemorrhage is from the throat, that their cough is purely bronchial, that their loss of weight is because they are a little run down, and then still their cough and their fears with a cough mixture, is surely trifling with a very serious matter, and neither keeps faith with the profession nor with the patient. Delays are surely bought with hazard, and while the moments chase each other into oblivion the disease is slowly but surely, like the Promethean vulture eating at the vitals.

The climate-cure, as applied to phthisis, surely represents no exceptional or isolated principle. Every physician knows how wide its range, how varied its uses. It rounds once more in graceful lines the wasted form of infancy and wreaths its face in smiles, brings the bloom of health to the faded

Digitized by Google

cheek of youth, restores the sleepless, care-worn brain of the business man, drives away melancholy and quickens the footsteps of age. Man is a being whose destiny is action, and the normal condition of all his bodily functions is best maintained by exercise. It is not enough that the consumptive be in the open air, he must still be a thinking, acting being. How this shall be secured matters not so that it be tempered to his strength, brings him pleasure and calls into play a generous use of the respiratory organs.

Hence comes the desire for food and the power to digest it,the restoration of lost tissue,the enhancement of all the nutritive processes and an increase of the power of resistance of the whole organism. It is the weak, feebly-resisting, easily-perishing cell that affords the proper soil for the propagation and thrift of the bacillus of Koch.

Within the limits of our own country may be found climate conditions so various as to fulfil all the requirements of the phthisical subject, so far as known climate conditions can be made subservient to their needs. The stage of the disease, the tastes and habits of the individual, his financial condition will all have their weight in determining the matter of selection. Unfortunately the data at present in hand are not so exact as to furnish an infallible guide, but a high altitude with a dry,aseptic atmosphere has produced the most generally satisfactory results. To this must be added as a *sine qua non*, a cloudless sky. The tonic effects of a cold climate are highly useful in the early stages of the disease, and have grown in favor as compared with warmer regions. Dry cold is well borne by consumptives. There are within the borders of our own state thousands whose lives have been saved by a timely coming and a permanent residence here, and the same may be said of Colorado and Southern California.

In closing I may quote again from the writings of our distinguished countryman, Austin Flint. In a paper read in 1863, before the New York Academy of Medicine, while referring to the subject of the climate-cure of phthisis, he says "I am well satisfied that here is the foundation for the successful management of pulmonary tuberculosis."

THE PATHOLOGY OF TUBERCULOSIS.

By J. H. Stuart, M. D.

Minneapolis.

The more recent disclosures on the subject of the pathology of tuberculosis have made its history exceedingly interesting, and a hurried reference to it will hardly be out of place in this connection. This interest, however, attaches mainly to the present century, for precious little was known of it anterior to that period. The disease itself was well known to the ancients, for Hippocrates, 400 years B. C.,wrote of it, and an exceedingly graphic description of the same, by Agnetus the Cappadocian, 50 A. D., is handed down to us.

Phthisis, from the Greek, *phthio*, *phthiromai*, meaning to waste or consume away, is the equivalent of our Latin derivative *consumption*, and possesses in itself no more pathological significance, for doubtless it was suggested by the well known external signs of the disease. *Tuberculosis* is from the latin word *tuberculum*, diminutive of *tuber*, which signifies simply a nodule, bump or tumor, without reference either to situation, or histological characteristics. Very naturally, as anatomical researches revealed the presence in various parts of the body of these hardened nodules or masses, they were called tubercles, especially in the lungs, where they were most frequently found. Cullen, in the latter part of the last century calls them "small tumors with the appearance of indurated glands"—Mangetus, about the same time likens them to millet seed, and hence the term *miliary tubercle*. Schönlein, about the year 1835, only a little more than 50 years ago, first used the term tuberculosis to designate the tubercular disease.

It is suggestive to notice that this innate difference of two terms applied to a disease in a general way, indicates at the present time a duality of teaching and belief which the wonderful discoveries of Villemin and Koch and the labors of their disciples have not been able to wholly reconcile. For it is evident that not all who admit the validity of Koch's discoveries are prepared to accept fully all the conclusions deduced therefrom.

During the first decade of the present century, when morbid anatomy had already assumed considerable prominence, Gaspard Bayle, of France, following Baillie, of Scotland in the new research, first gave to tubercle a genuine pathological significance. He defines it as a "homogenous substance, always opaque, in color white, or a dirty white, sometimes yellowish, sometimes greyish, in size from a millet seed to a chestnut." This tubercle he declared always became cheesy through a process of degeneration. Boyle had not overlooked the small, translucent bodies of firm, cartilaginous feel, now commonly called miliary tubercles, but he denominated them granulations from their partial resemblance to granulation tissue, I suppose, and he refused to call them tubercles, in accordance with his criterion of degenerative change. A few years later, 1819, Laennec declared the unity of Bayle's granulations and tubercles, showing that the latter was merely a progresssive stage of the former. Laennec applied his new invention, the cylinder, as he always denominated the stethoscope, to the delineation and diagnosis of diseases of the chest, and was able to trace the morbid changes in the lungs as they progressed. This was an epoch in the history of dis-

Digitized by Google

eases of the lungs, he literally created the art of auscultation. He detected the presence in portions of the lung of the miliary or translucent tubercle long before the existence of consumption was suspected from the occurrence of the process of caseation. He not only determined the unity of Bayle's granulations and crude tubercle but he remarked that the same material invaded larger areas of lung tissue by infiltration, what is known as diffuse tubercular tissue.

The next step was to determine the seat of tubercular formation in the lung. It was at first supposed to be within the air cells. This led to studies into the pathological changes of pneumonia, and it was observed that the deposits of this disease were also into the air cells. Thence it was inferred that the tubercular infiltrations were the result of a scrofulous pneumonia. In the case of the granulations however, it was found that their seat was in the delicate walls or parietes of the air cells. This was Addison's criterion of tubercles, viz: their *location* in the septa of the air cells and not the caseation of Bayle, as shown by Laennec. This brings us up to near the middle of the century and to the time when the microscope underwent great improvements. Its aid was brought to bear upon the further solution of this problem. Wm. Addison, after repeated examinations came to the conclusion that between pneumonic deposits in the air cells and tubercular formations there was no other difference than exists between the recently excreted and the degenerated matter of an abscess.

Virchow came to the same conclusion. He also believed that the deposits in scrofulous glands before they undergo cheesy degeneration were nothing more than a simple hyperplasia which underwent the resorbing process. But the translucent granulations or miliary tubercle before it became cheesy was found to possess a distinct lymphatic character, and being found in the connective tissue, Virchow called it heteroplasia, that is lymphoid products in abnormal situations. With Virchow, therefore, the criterion of tubercle was heteroplasia and not caseation as with Bayle. Thus was the German school opposed to the French school.

Now the primitive tubercle is a microscopic body and it was found to contain corpuscles imbedded in a reticulum. These corpuscles were observed to be round, some of them lymphoid and smaller than lucocytes, some larger. There were found also remnants of minute vessels of the tissues in which the tubercle was found, as though they had been choked by it, with areas of necrosed tissue resulting therefrom. Virchow recognized in the translucent or miliary tubercle, lymphoid, epithelioid and myeloid or giant cells, and further than the existence of these cells in a reticulated stroma I am not aware that the analysis has been carried. As to the presence of the tubercle bacillus in these primary tubercles, the translucent form, it is claimed by some and denied by others. Until it is conclusively shown that the bacillus is here present constantly, or very generally, there will appear to be a link wanting in the chain of reasoning in this instance from cause to effect.

The next question that presented itself for solution very naturally was concerning the origin of tubercle. There were present the lymphoid cell, the epithelioid cell and the giant cell—where did they originate? Were they corpuscles from the blood, a real exudate or inflammatory product, as held and lucidly taught by Niemeyer, or was the tubercle a product of a proliferation of the fixed corpuscles of the various tissues, other than the epithelial, a real neoplastic, or rather a heteroplastic growth, after Virchow?

Fox and Sanderson believed (1868) that it was an overgrowth of lymphadenoid tissue and that this lymphadenoid tissue is very generally present in the human body, particularly around the sheaths of the minute blood-vessels; that the tubercle is developed from the lymphatic vessels by a metamorphosis of the endothelium and outer tunic of the lymph vessels, remnants of which, as has been said may be seen, as well as necrosed areas and white infarction tissue. What could give rise to these intricate pathological processes which with such persistency sprang up and so inevitably ended in the destruction of greater or less portions of the body or even of life itself?

The cheesy degeneration of the tubercle and the purulent detritus resulting therefrom was thought by many to contain the germinal cause or infecting principle of the disease. But the great authority of Virchow swayed the current of thinking and teaching away from the channel opened up by Bayle and Laennec and Louis, directing attention to the intricate inflammatory processes in the lungs and elsewhere with lymphoid growths and heteroplastic developments. Thus the cause of consumption was regarded as something intrinsic or within the body. It was spoken of as a diathesis, a cachexia or a crasis (Rokitansky). The great work of Niemeyer strongly reinforced this idea, by his doctrine of caseous pneumonias and fluxionary hyperæmias.

But a new scent in the pursuit of this investigation was discovered in the idea of the inoculability of the disease by tubercular material of infected organs. The infectious nature of the disease had been suspected and believed by many, but it was never fully established until Villemin demonstrated the fact to the Paris Academy, his work being fully confirmed by an able committee of that body. This discovery confirmed the belief in the existence of an infectious material, which, however, was never conclusively shown until Koch was ingeniously led to the discovery of the bacillus, known as the bacillus tuberculosis, an account of which he published in 1882. The work was so carefully and

Digitized by Google

so conscienciously done that, as yet, the matter remains substantially as he first published it, and it has received a multitude of confirmations of its truth. It seems to have settled down into the minds of medical men with the force and unction of an absolute truth.

It has given a new definition to the disease under consideration, viz., "Tuberculosis is an infectious disease caused by the tubercle bacillus, and characterized by the production of tissue and of inflammatory products, which appear both in the form of nodules, and as a more diffuse infiltration, and which rapidly undergo caseation." The meaning of this definition may be summarized somewhat as follows: 1. All forms of tubercular disease are a unit so far as relates to their etiology. 2. The bacillus tuberculosis is the causing agent. 3. All the morbid products of the various forms of tuberculous disease result from the introduction into the system of this same bacillus. 4. These products are (1) miliary tubercle, (2) diffuse tubercular tissue and inflammatory products, (3) the bacillus tuberculosis.

Tubercle is said to have no constant structure, and under the microscope its form is never sharply circumscribed. It has a strong tendency to undergo necrosis, not so much from want of blood supply as from the action upon its cells of the bacillus. It is composed principally of cells, as has been said, to wit: the lymphoid cell, the epithelial cell and the giant cell with its numerous neuclei. This giant cell usually, it is said, occupies the center of the tubercle. Each tubercle is blended with the surrounding tissue by a zone of cell formation, which merges gradually into the cell. The source of this newly-formed connective tissue is not known. Thus it is evident that the pathological changes in the different forms of tuberculosis, or even in the same form, are often complex. For example, in acute phthisis of the lungs the tubercular material may be in the air cells or their parietes, in the cavities or walls of the bronchi, or in all these localities. The necrosis of tissues, as well as the degenerative change of tubercle, depend as much perhaps upon defective blood supply as upon any other cause.

The bacillary theory wonderfully simplifies the pathology of this disease. It sets aside the "crases" of Rokitansky with their coagulable exudates of proteid matter. It explains the lymphoid growth and heteroplastic developments of Virchow, as it also denies the caseous pneumonias and fluxionary hyperæmias of Niemeyer, which had found such wide acceptance. All forms of the disease are dependent upon the presence of the bacillus tuberculosis in the body. But there are difficulties yet in the way of the full acceptance of this doctrine.

The bacillus, there is reason to believe, does not always, nor even in any very considerable number of those exposed to its presence give rise to the disease. It is admitted that in the Brompton Hospital, England, where are gathered together the largest number of consumptives at one place in the world, of the attendants and others present no larger per cent. is attacked with the disease than of the inhabitants of cities generally. It is claimed by some, though denied by others, that the bacillus is not found in the incipient stage of tubercle formations, nor in the miliary or granulation tubercle. It is even denied by some that the bacillus is always found in the caseation product.

The question now at issue is, is the presence of the bacillus absolutely essential, in all cases, to the production of the disease? Certainly not all who happen to have foci of caseous degeneration are necessarily attacked with tuberculosis. It is certain that there is something else besides a contagion required to produce the disease, and that something is a predisposition or tendency which is either congenital or acquired. This tendency varies greatly in its intensity, but it eludes all efforts to detect its nature. It has been supposed to depend upon some abnormality of the lymphatic system, such as too thin walls of the vessels allowing the escape of lymph material, etc. Whatever this tendency is it seems in some instances to be of so great intensity as to give rise to an iodiopathic tuberculosis, or I should rather say phthisis. While it is certain that this predisposition is inherited, there is not a vestige of proof that the bacillus may be transmitted to offspring through fecundation.

Mr. Gibbs, professor of histology in the University of Michigan, and Dr. Shurley, of Detroit, have published in the *International Journal of Medical Sciences*, March and May of this year, some of their observations which would seem to invalidate the teaching of Koch. They quote from Dr. Roberts' "Hand Book of Theory and Practice," 1888. "I must still," says he, "express my concurrence with those who take a wider view of the pathology of this complaint than to regard it as always tubercular, and still less as invaribly requiring the action of the tubercle bacilli for its developement."

Dr. Douglass Powel, in his work on "Diseases of the Lungs," 1886, says: "It cannot then be said that the position of the tubercle bacillus with regard to the etiology of phthisis is as yet established, although its intimate and exclusive association with that disease, by its recognition in the excreta and expectorations affords a valuable criterion for diagnosis in obscure cases."

Aufrecht, an associate of Koch in his experiments, says, "I cannot see how medical men can think and believe that the bacillary origin of tuberculosis is an established fact." He also says that "the pathological change is not the same in all cases, the disease not running the same course clinically."

Dr. Shurley declares that phthisis pulmonaris is

Digitized by Google

primarily an inflammatory process, whether subsequently tubercle or any other degeneration appear among the inflammatory products or not, and that phthisis pulmonalis and tuberculosis are really two distinct diseases. He quotes from Flint, Bristow, Fagge and Payne, showing that while these authors recognize Koch's bacillus tuberculosis as being the virus of the disease, yet they believe there are two forms of phthisis pulmonalis—the miliary granulations and the infiltrated deposit, formerly distinguished as acute tuberculosis.

Until there is a greater unanimity among pathologists and teachers, doubtless as has been said, "a method of simple inquiry will continue to be our safest guide through this topic for a while to come."

A CASE OF HEPATIC ABSCESS.

By E. E. Brubaker, M. D.,

Northfield.

Mr. W., of Northfield, Minn., native American, aged 42, weight 150 lbs, height 6 ft., was confined to his bed Feb. 7, 1890, with pain in right hypochondrium accompanied by fever. I was called to see him Feb. 9. I found his temperature 101° F., tongue dry through the centre and coated brown. The pain was located in the right side, along the border of and under the ribs. The most sensitive spot in front was from the vicinity of the pyloric extremity of the stomach, downwards along the border of the ribs, 2½ inches. A very sensitive spot was located posteriorly between the 11th and 12th ribs. Position had much to do with the aggravation of the pain and discomfort of the patient; he could not lie upon the left side nor sit up without aggravating the pain; he could lie upon his back, but the position assumed by the patient and in which he remained most of the time throughout his sickness was the right lateral, with the lower limbs slightly drawn up. A movement aggravated the pain. Measurement did not reveal any enlargement of the right or left side. Pressure upon the most tender point in front, if carried slightly under the ribs would invariably set the patient to coughing. This cough was also experienced upon any movement. There was no expectoration, and an examination of the lungs at the time revealed nothing abnormal. There was a slight yellowing of the skin, which was more perceptible upon the face and hands than elsewhere.

The history of the patient prior to my first visit brought out the fact that for some three or four weeks he had been having irregular chills; although he had filled his place at his store during this time, yet he was obliged to "hug the stove," as he expressed it, most of the time each day. He became aware of an indefinite soreness on the right side, and in walking would favor it by leaning forwards and to the right. During the fall and early winter he had had five or six small perineal abscesses. About the last week in December, 1889, a large perineal abscess developed; he spoke to me several times about it, saying he was coming to the office to have it lanced, but as I had lanced one in the same locality for him in May, 1889, which was rather painful, he dreaded a repetition of that experience and delayed. The abscess was permitted to pursue its own course, finally breaking and slowly discharging, the whole period of its duration being something over two weeks. About this time he began to feel badly and soon began to notice a soreness in his right side; from this period on the chilliness was experienced which caused him to remain about the stove in his store most of the time; this had continued about four weeks at the time I first saw him.

From the anatomical relation existing between the portal vein and the inferior hæmorrhoidal veins which are the terminal branches of the inferior mesenteric vein, this latter uniting with the splenic and the splenic and superior mesenteric veins uniting to form the portal, I made a probable diagnosis of hepatic abscess, due to a thrombus in one of the inferior hæmorrhoidal veins in proximity to the perineal abscess, becoming detached and carried through the inferior mesenteric, splenic and portal veins into the liver, and forming the nucleus for a suppurative process in that organ.

So far as the history of the progress of the case is concerned I will try to be as brief as possible. The temperature was very variable, ranging from 100.5° to 102.8° F., most of the time from Feb. 9 to Feb. 22, when it reached 103° F. at 9 o'clock P. M. From this time on the temperature tended to be a little higher evenings; although falling as low as 100.6° mornings it would reach 103° F. at night. From Feb. 9 to Feb. 27 there were no chills and no sweating. The night of Feb. 27 he sweated profusely, and awoke at 4 o'clock on the morning of Feb. 28 feeling cold, and asked to have the fire replenished, and a bottle of hot water placed in the bed. A measurement of the side at this time showed an enlargement of the right over the left side of one inch.

March 1 at 10 o'clock A. M., the temperature was 102.4° F., the highest temperature yet reached in the morning. He sweated all night and awoke on the morning of March 2 feeling cold and chilly; sweated profusely on the night of March 2; awoke in the night and as he expressed it, "found himself in a river of water." By inspection at this time it was plainly to be seen that the entire right side was more prominent than the left; the contour of the side from the most prominent point of the thorax below the axilla to the crest of the ileum was much nearer a straight line than upon the left side, and there was a bulging perceptible posteriorly, beginning below the 9th and extending below the 12th rib.

The temperature ranged from 100° to 100.6° F.

Digitized by Google

in the morning, to 102.2° at night, from March 3 to 8. The sweating every night was profuse, sufficient to wet three garments and the sheets through. There were no distinct rigors, but the patient would awake every morning about 4 o'clock feeling cold and ask to have the fire renewed and a hot-water bottle and flat irons placed in his bed.

On Friday evening a Codman & Shurtleff's aspirator for which I had sent, arrived, and on Saturday, March 8, just four weeks from the time he had been compelled to take to his bed, I aspirated, selecting the summit of the posterior prominence, and using needle No. 3. I introduced it in the intercostal space between the 11th and 12th ribs and about three inches to the right of the spine. Pus was reached at the depth of 1½ inches, but was so thick that it would not flow through the No. 3 needle, which was the largest size I had. After working about forty minutes I concluded to wait until Monday and in the meantime apply a large poultice to the entire side, in the hope that the heat would favor further disintegration of the pus. I obtained only three ounces of pus but was convinced there was much more from the freedom with which the needle could be moved about, showing a cavity of good size. On Monday I renewed the aspiration at the same point as before, and as before made preparations to irrigate the abscess cavity, for which purpose soft water had been thoroughly boiled and filtered through ordinary druggist's filtering paper. A separate bottle, thoroughly cleansed, was used for the irrigation fluid, in which was dissolved one ounce of boracic acid to the quart. This time the pus flowed freely through the needle; eight ounces in all were drawn off, after which the bottle containing the irrigation fluid was attached to the aspirator, the pump reversed and the bottle inverted. In this way the cavity was thoroughly washed out. Each time the cavity was filled the bottle was removed and the washing drawn off in another bottle so as not to foul the solution used for irrigation.

Tuesday morning, March 11, the patient expressed himself as feeling much better; he had sweated very little during the night; temperature at 9 o'clock A. M., 99.8° F. From this the temperature ranged from 98.8° to 99.6° F., mornings, to 101.6° F., evenings, reaching 102.4° F. on the evening of March 17.

Saturday, March 15, symptoms of localized pluritis with slight involvement of the base of the right lung developed, due undoubtedly to proximity of the abscess and the tendency to its travelling in that direction. The sweating after the first tapping and irrigation was but slight for three or four nights, but from this began to increase.

March 17, eight days after the first tapping, I repeated the operation at the same point as before, securing eight ounces of pus again. I irrigated as previously, with the same antiseptic precautions. The symptoms of pleurits speedily subsided. Tuesday, March 18, at 8:30 A. M., the temperature was 98° F., at 7 P. M., 99.8°. Wednesday, at 10 A.M., temperature 98.4°. Thursday, at 9 A. M., temperature 100.2°. Friday, March 21, repeated the tapping, this time securing about six ounces of pus. I repeated the irrigation, washing out the cavity five times. From this date the temperature record was not preserved, as the temperature never rose above the normal for eight days, but reached as low a point some mornings as 97° F.

March 26 I repeated the tapping, securing three ounces of pus. This time in addition to the boracic acid I added some carbolic acid to the solution, less than a teaspoonful to the quart, all that happened to be at hand. The slight sweating had entirely disappeared and the patient was much improved in every way. I tapped again Saturday, March 29, but did not secure any pus but a bloody serum of syrupy consistence. This time I threw into the sac a solution of carbolic acid of the strength of 1-40. After drawing this off I washed out the cavity several times with simple water. This operation was completed about 2 o'clock P. M. At 4 P. M. the patient began to feel badly and had a chill lasting one hour, followed by fever; the temperature at 5 P. M. was 102.4° F., but fell to the normal by 9 P. M. He rested well during the night and expressed himself as feeling unusually well Sunday morning. The temperature was normal, but at 4 P. M. he had another chill lasting thirty minutes. The temperature rose to 102.6° at 6:30 P. M. but at 10 P. M. was normal. Monday and Tuesday evenings at the same time the chills recurred, but were lighter and the temperature did not go above 101.6° F.

After this date, April 2, the chills ceased and the patient made a n uninterrupted recovery.

There are two points of interest in this case: 1st. The assumed relation between the perineal abscess which the patient had during the last week of December, 1889, and the first week of January, 1890, and the suppurative hepatitis following so closely. 2nd. The conservative plan of treatment by repeated aspirations and irrigation of the abscess cavity with most rigid antiseptic precautions.

The anatomical relation existing between the portal and inferior hæmorrhoidal veins, made it possible for a thrombus becoming detached in this locality to float directly into the liver. That a thrombus was formed in a branch of the inferior hæmorrhoidal veins, and on account of its proximity to or immediate communication with the perineal abscess, became infected and was subsequently detached and carried thence into the liver, there seems to me but little doubt, as the process in the liver developed so soon subsequently to the perineal abscess. That repeated tapping with the aspirator is not only more conservative than a free opening with drainage as well as a safer method when one is not certain of maintaining antiseptic surroundings, and all things considered, the plan of

Digitized by Google

treatment to be preferred, I think no one can doubt, and it is certainly more agreeable to the patient.

I wish to say in conclusion that the microscopic examination of the pus secured revealed innumerable hepatic cells in a state of fatty degeneration. The large amount of fat in these cells may be accounted for by the fact that the patient was kept upon cod-liver oil throughout his entire sickness. It is scarcely necessary to refer to the medical treatment of the case as this was only directed to relieving pain and maintaining the heart. For the first a moderate amount of morphine only was required, and strychnia in solution 1-10 gr. every four hours was given throughout his sickness, for the latter object. The chills occurring after the last tapping were treated with large doses of quinine.

It may be well in this connection to briefly review some points on the subject of hepatic abscess, and I have selected a few extracts from the excellent work of Roberts Bartholow in Pepper's "System of Medicine." "Hepatic abscess is of very frequent occurrence in tropical climates, and those warm countries visited by epidemics of dysentery; not the native population but foreigners are the ones most frequently affected. In the United States the vast region included in the Valley of the Mississippi and its tributaries yields the largest number of cases. Aside from the climate, soil, social and personal habits of both sexes, causes residing in exposure, special vices, etc., exert a great influence in the selection of subjects, as by far the large majority of cases occur among males. Of 258 cases collected only eight were women; of 12 cases observed by Dr. Bartholow himself only one was a woman. In Warring's collection of 300 fatal cases of tropical dysentery only nine were women. These facts," says Bartholow, "are conclusive regarding the relatively greater frequency of the affection in men." As to the age, the large majority of cases occur in adult life. As to special causes favoring hepatic abscess, the bodily conditions influential in the formation of gall-stones may be mentioned, but Bartholow says that the most important causes of hepatic abscess exist in the state of the portal vein, hepatic artery and hepatic veins. It is found in a large proportion of the cases that the initial stage is an affection of the rectum, proctitis, an affection of the mucous membrane from which the inferior hæmorrhoidal veins arise. In non-tropical countries abscess of the liver is found to succeed to ulcerations of the stomach, the intestines, the bile-ducts, etc. In the case of the ulceration of any part from which the portal vein receives branches, a morbific material or an embolus may be conveyed to the liver, which, arrested in the portal radicals, sets up an inflammatory focus. Emboli may be lodged in the liver from thrombi formed in the peripheral distribution of the portal vein.

As to the termination of cases of hepatic abscess, from 72 to 85 per cent. result fatally when left to themselves. The results of operating in the past, by open incision or trocar are but little better, judging from the cases collected. Of those reported as operated upon by aspiration, the per cent. of recoveries has been much higher, from 50 to 70 per cent.

The only other experience I have had with hepatic abscess was in a case occurring in my practice in Ohio some eleven years ago, and this case was a woman. The abscess was a small one and located in the right lobe of the liver; there was no external evidence of its exact location. Aspiration was performed, two or three ounces of pus were obtained and the patient soon got up, but in the course of two months the abscess recurred. Aspiration was performed again but the abscess was not reached. About three weeks later, while waiting for developments so as to be able, if possible, to locate the abscess and aspirate successfully, it broke into the bowels, discharging with the stools. The patient soon got up again and went on a visit to Iowa where she was taken down again. This time the abscess found an outlet through the lungs. A year later the patient returned to Ohio looking as well as ever, and so far as I know has never had a recurrence.

At this time the subject of this report seems to have completely recovered; the only thing complained of is slight pain occasionally at the point of tapping, due undoubtedly to traction upon adhesions of the liver at this point.

THIRTY YEARS' EXPERIENCE IN THE TREATMENT OF DIPHTHERIA (1860-1890)—HAVE WE ADVANCED MATERIALLY IN ITS THERAPEUTIC MANAGEMENT DURING THESE THREE DECADES?

By C. G. SLAGLE, M. D.,

Minneapolis.

The purpose of this paper is mainly two-fold.

First, in response to a declaration made in our Hennepin County Medical Society by an able and esteemed member of the medical profession, "That we have *not* really advanced one iota in the treatment of diphtheria within the last quarter of a century; that as ever all mild cases get well, and about all severe cases die."

And secondly, to endeavor to suggest to this Soety a new remedy of great value, and to emphasize the virtues of an old one.

I was not a little surprised to find that in our Society it devolved upon me alone to challenge the very humiliating statement referred to.

Whether the medical profession at large has advanced satisfactorily in the therapeutic management of this still much dreaded disease, might admit of some questioning, but that some of us have progressed very much in this direction I shall herein presume to assert, and, indeed, that our great

Digitized by Google

leaders (or authors) in this field have made great advancement even within the last decade, I think no one can doubt who will refer to the monographs written during this late period, and compare them with those written a decade or two previous to that time.

It would not be interesting to occupy your valuable time just now in attempting to review the history of the different epidemics of this affection, which have been reported both in this and foreign countries, previous to its introduction and permanently locating in the United States in 1859 and 1860. This has already been done for us time and again by various able and painstaking medical men.

I will venture,however,to state briefly that diphtheria has been recorded by various authors as it prevailed in different parts of Europe at short intervals, during the first half of the present century, but very little in America until about 1850, and nothing like localized or permanent with us until about 1860.

In order to record something of my personal experience with diphtheria, which is, partly at least, the subject of this paper, I shall have to say that it first appeared in the extreme eastern part of our country, in the winter and spring of 1859 and 1860; extending rapidly along our seaboard coast from Boston to Baltimore, and thence spreading westward, it reached Louisville, Kentucky, in the fall of 1860, where I first began to study it, as I was just then graduating from the medical department of the University of that city, and where the faculty attempted to teach us what little was then known in this country about this then new and very formidable disease.

In the early spring of 1861 I went farther west and located in northwestern Missouri, where I think I can say I saw and recorded among the very first, cases of diphtheria recognized west of the Mississippi river, and also have to state that of the first cases seen (eleven) all but one speedily proved fatal. These cases proved to be the first of a severe epidemic.

Our principal knowledge of this affection at that time (May, 1861) seemed to be summarized in a monograph by Dr. D. D. Slade, of Boston, who had just been rewarded by a prize ($100) offered by the Boston Medical Society for the best thesis on diphtheria. This thesis was at once published and largely sought for by medical men all over the country, and a copy of it I early procured, as a basis of my knowledge of this strange affection, and while it was apparently a masterly resúmé of the knowledge of the disease at that time, the treatment therein recommended, and especially the local treatment, as we all soon discovered, was most unsatisfactory, proving as fatal as it was heroic, for following Trousseau and Bretteneau, of France, we were taught to attack the psuedo-membrane with "savage energy" with lunar caustic, swabs, etc., and even then our old tinct. ferri and potas. chloras (which I am sorry to believe so many have not yet abandoned) was advocated, and while all have long since become convinced that lunar caustic, vesicants, etc., are worse than useless, I really fear the great body of physicians have not got beyond that old hobby, "tinct. ferri mur. and pot. chloras," in the treatment of acute diphtheria, first suggested, probably, by Bretteneau in 1818, and reiterated by Slade in 1860, and ever since reiterated by so many of acknowledged authority.

If the regular medical profession were ever guilty of clinging to what might be called a "hobby," it has certainly been this, for more than a quarter of a century, and as for myself, I am prone to confess that I also clung to it for at least twenty-five years, more perhaps because I had good authority for doing so than from any real virtue I found in these agents for controlling specific symptoms in an attack of acute diphtheria, and I can only admit that I was eminently unsuccessful as long as I relied on these reputed remedies during the acute stage of this dreadful affection, and I desire to declare here and now that for the remainder of my professional life I am ready to renounce these much over-rated agents in the treatment of the acute stage of diphtheria; moreover, to emphasize my convictions in this regard, I hereby challenge competition with any and all physicians who may still rely upon them as being at all valuable therapeutic remedies in the acute stage of this affection, whether applied locally or used constitutionally.

I am aware this is a bold position to assume in this place, but a very ripe and sad experience has thoroughly convinced me that I am perfectly safe in assuming such a position. Not perhaps that these old and well-authorized agents are in themselves harmful in this disease (although I really believe much harm has been done by the too free use of chlorate of potash), but rather that they have continually been put in the way of far better remedies, with which they are chemically incompatible, as well as the fact that they have often (especially the tinctura ferri) been ordered with a rigid milk diet at the same time, which has undoubtedly done great harm to digestion and nutrition, which we all understand must be guarded above all things in this affection.

As for myself I again confess that until quite recently I never approached a case of typical diphtheria without fear and trembling, and like my venerable confrere to whom I now respond, I had almost lost confidence in all reputed drugs for this ailment, for I think I can say that I have tried almost everything that has been brought at all prominently before the medical profession during these three decades, and as I say, with poor success until about three years ago, when sulphite of sodium was suggested to me by a medical friend in whose judgment and candor I had the utmost confidence.

Up to that time I felt sure that one of the very best remedies I had yet employed was calomel,

Digitized by Google

though not entirely sufficient in many cases without some effectual remedy to act as an auxilliary and to continue later in the affection than it would be proper to administer calomel; I now declare that such an agent I have found in the sodii sulphis, and with these two potent remedies I have now bidden farewell forever to my old and much used and most unsatisfactory acquaintances, tinctura ferri and potassii chloras, at least during the acute stages of this ailment, although I still use them later on in some cases to repair the anæmia, etc., left by the attack. Up to the time specified (now hardly three years) I could not have felt like challenging the hopeless assertion which has conduced largely to provoke this paper; with my calomel and sulphite of soda, however, I now approach a case of typical diphtheria with as much confidence at least as I do one of scarletina, having lost no case since I adopted this treatment and having since treated more than forty cases.

In response to the questions sent out by the *Therapeutic Gazette* in 1883, in their "Collective Investigations of Diphtheria," I stated my convictions then, that calomel was one of the very best remedies we had yet discovered to control the first violent symptoms of diphtheria, and especially to control the psuedo-membranous formation in the throat; further observations have only confirmed those opinions, with now the single exception of sulphite of soda since brought to my notice.

In my good opinion of calomel in this disease I find I am well sustained by several recent investigators of very high authority. "Dr. Simon Baruch," says Smith, ("Encyclopedia of Diseases of Children,") "begins the treatment of all cases not attended by diarrhœa with calomel, and he cites the experience of Dr. Carter who gave it in the preliminary treatment of sixty-nine cases, losing only one." Dr George B. Fowler considers calomel "the very best remedy yet discovered with which to combat diphtheria." Dr. I. N Love, of St. Louis, remarks that the most marked recent recommendation of the use of calomel in diphtheria is from the pen of Dr. W. H. Daily, chairman of the laryngological section of the Ninth International Medical Congress. Dr. Daily's method is to "administer the calomel (2 to 5 grains) every one or two hours until catharsis follows, and then at longer intervals." I would suggest much smaller doses (½ to 1 gr.) every two hours for the first 24 to 36 hours.

The able editor of the *Therapeutic Gazette* writes thus: "We have so frequently seen an apparently severe attack of diphtheria abruptly aborted in its inception under the influence of calomel, that we can scarcely believe that the drug has no pronounced effect. A grain of it," says our author, "should be put dry on the tongue of the child every hour or two, until frequent, loose evacuations are produced." I desire to state, however, that in my experience the calomel in frequent small doses for the first 24 to 36 hours does not, as a rule, produce the "frequent, loose stools" in this affection here spoken of, especially if interluded with the sulphite of soda; nor do I believe such an effect is desirable, for obvious reasons. On the other hand there seems to be a peculiar tolerance of calomel in these cases, just as there is of emesis in some forms of croup, or of alcoholic stimulants in some forms of toxæmia.

You will thus perceive, gentlemen, that I claim nothing for originality of discovery of the virtues of calomel in diphtheria, but merely emphasize its efficiency, especially in connection with or as an auxilliary to a valuable remedy which has been entirely overlooked by the medical profession, and of which I now desire to speak more fully, viz., sodii sulphis.

My treatment for the past three years which has yielded such satisfactory results has been as follows: ℞. Calomel, grs. xii; soda carbonate, grs. xxxvi. ft. chart no. xii (or half this if young child.) Sig. "A powder every 2 hours." To be followed (when all used) by ol. ricini ʒj, ol. terebinth. ʒj. And every alternate hour and until the case is fairly convalescing, give a teaspoonful of a saturated solution of Merck's sulphite of sodium; if the case is a bad one, direct a gargle or spray of the same to the throat every two hours.

I do not claim that this is all the treatment that I now ever give for diphtheria, but I do say that this is the main and principal treatment, and upon which I confidently rely for specific effects in removing the membranous deposit from the fauces and preventing its re-formation, often seeming to really abort the attack. My cases have all been fairly convalescing within three or four days on this treatment, with of course good support and that improved hygiene and regimen, now well understood by every physician of ordinary ability. If convalescence be tardy I employ as ever, tinct. ferri, quinine, stimulants, nux vomica, etc., etc. If you ask me what form of diphtheria will this treatment cure, I cheerfully answer that most common and generally fatal form usually described by authors as true typical diphtheria, that form where it would usually be deemed fair practice to only lose one out of every half dozen cases.

As to the very mild or "catarrhal" form, this or any of the reputed remedies will suffice (even tinctura ferri et pot. chloras), and as to the croupous form (fortunately rare) I do not claim that this or any other known remedies will save one out of every 25 cases, but these remedies with the assistance of advanced surgery will save many cases of even this dreadful form. Prof. Smith justly remarks, ("Cyclopedia of Diseases of Children"): "To the genius and perseverance of an American surgeon (O'Dwyer) the world is indebted for the means of combating more successfully than in former times, the most painful, the most dreadful and the most fatal form of diph-

Digitized by Google

theritic inflammation — laryngo-tracheal-diphtheria." As to the "malignant or typhoid" form and the "putrid" or "gangrenous" which I think are now almost never seen in this country, at least, not having now seen a case for near twenty years, I confess I should have very little confidence in any treatment for these dreadful forms of this disease. If prevailing they will probably be equally fatal one hundred years hence.

I may be allowed here to state candidly, that of forty-four cases of "typical diphtheria" treated within the last three years without a death, I am as sure that I would have lost at least half a dozen by any treatment formerly known to myself as I can be of anything which it is not possible to demonstrate, for several of them were very severe in their inception, and just such as I formerly lost as a rule.

I have no theory upon which to predicate or defend my late treatment, although you can readily perceive it comports well with the late "zymotic" and "specific germ" theory of this disease, both the mercurials and the sulphite of sodium being acknowledged germicides of great potential energy, but I only know, what I here declare, that for controlling the membranous deposit in the throat and speedily curing my patients, I have thus far never found any therapeutic agents that will at all compare with the mercurials and sodii sulphis, if properly employed in the inception of the disease.

Why the sulphite of sodium has been so singularly overlooked in our therapeutics of this and other "zymotic" affections I cannot now determine; I cannot find it even mentioned in all the late treatises on diphtheria, nor even in any of the late popular medical journals. The only reference I find to it at all is in the U. S. Dispensatory, where it has been employed with great success in the "yeasty vomiting" ("sarcinæ ventriculi, etc.") and as a local remedy in that species of apthous sore mouth which is attributable to a "parasitic vegetable," but even this is suggestive.

Of the hyposulphite of soda I fin d several instances where it has been employed and recommended in diphtheria; and one foreign author reports eight consecutive cases successfully treated with it. I will state, however, that I had tried the hyposulphite of soda for this affection several times before I heard of the sulphites, and with no better success than I had achieved with other remedies of repute.

In conclusion, I repeat, that diphtheria, in some of its graver forms (fortunately now more rare) is destined ever to be a largely fatal malady, seems probable, especially in the "croupous," "malignant" and "gangrenous" forms, and that our progress has ever been impeded by the routine employment of certain agents on theoretical grounds alone. I have not the slightest doubt. But that the medical profession has advanced greatly in the general management, hygiene, prophylaxis and in the surgical treatment of diphtheria, it seems to me no one can doubt who will compare the late literature of this disease with that of two or three decades ago, and if we can find a more satisfactory therapeusis than we have hitherto generally known (and I claim that in the remedies indicated in this paper we have already done so), we certainly have no great reason to feel mortified at what we have accomplished in the management of this dreadful scourge, except perhaps in the very tardy manner in which we have achieved that advancement.

307 Plymouth Ave.

THE CONTAGIOUSNESS OF ACUTE LOBAR PNEUMONIA.

By C. A. Chase, M. D.

Minneapolis.

This subject is so comprehensive that we hardly know how to treat it in the brief time allotted us, but we propose to cite some interesting cases bearing on the subject, enough, we believe, to convince some and to lead even the most skeptical to doubt at least the generally accepted theory regarding the nature and ætiology of the disease.

It is undoubtedly a question on which many could be enlightened, and one of which none have any too clear a conception concerning all its peculiarities and intricacies; and if by our efforts we may awaken some enthusiasm and provoke discussion we shall feel that the subject was not selected amiss.

We were led to present this subject at the suggestion of a fellow-practitioner, who, during the past year, saw, in consultation with us several cases of lobar pneumonia complicating typhoid fever at the Minneapolis City Hospital.

Such an unusually large per cent. of the cases had this complication that we were impressed with the idea that there must be something in the nature of a contagium causing it.

At least 25 per cent. of the cases of typhoid fever in the fever ward were complicated at one time with lobar pneumonia, and as 3.6 per cent. is a fair average of this complication, we consider our impressions well grounded. Our convictions were strengthened, when on assigning recent cases, on admission, to another part of the hospital till the infected ward could be disinfected, we found the cases no longer existing in pairs, and subsequently only a case occasionally. We regret exceedingly that accurate statistics cannot be furnished.

Dr. Syers, Physician to Out Patients, Great Northern Central Hospital, London, cites[1] two cases of interest bearing upon hospital contagium. Two children under ten years of age lay in adjacent beds. Both were admitted for affections having no relation to the chest and without any ele-

Digitized by Google

vation of temperature. In a few days the temperature of one, æt. 6, suddenly rose to 102.2° accompanied with pneumonic signs. Ten days later, resolution not having set in, he died. The right lung was consolidated throughout, the lower lobe being in a state of red hepatization.

At almost the same time that this patient developed pneumonia the same disease manifested itself in the patient in the adjoining bed, affecting the left upper lobe. The latter recovered.

Jurgensen, in Ziemssen, 1875, before Friedländer's pneumococci were discovered, boldly took his stand saying "croupous pneumonia is a constitutional disease and is not dependent upon local causes. The pulmonary inflammation is merely the chief symptom and the morbid phenomena are not due to the local affection. The hypothesis of a morbific cause is indispensable. Croupous pneumonia belongs to the group of infectious diseases."

After a careful examination he found that only 45 cases out of 205 patients sick with pneumonia ascribed their illness to exposure to cold. In 186 cases there were only 10 in which Ziemssen ascertained that the chill was or seemed to be the exciting cause, making the cases attributed to exposure or a chill only 14 per cent.

Jurgensen further says: "Our positive knowledge in regard to the ætiology of pneumonia is so limited that we must look for decisive proof on this question in another direction." Thus we see him shrouded as it were in darkness.

Clinicians and pathologists have been able to accomplish but little in determining the ætiology of the disease, but within the last few years through the bacteriologist rapid strides have been made towards reaching a solution of the problem. Those holding a view that it is a local inflammation pure and simple, and exposure to cold the only cause, must ere long give way to the more progressive and modern one held by many of the best authorities, viz: "That acute lobar pneumonia is an infectious disease and in many cases has the appearance of being contagious."

Dr. Townsend[2] gives some interesting statistics regarding epidemics of pneumonia, leading him to believe the disease infectious if not contagious or communicable from one person to another. Out of 90 cases since 1863 there were eleven instances where there were two cases and one where there were three cases in the same house at the same time, there being cases also at the same time in neighboring houses which were filthy, crowded apartments.

Dr. Graham, commenting upon certain epidemics concludes that it appears occasionally to be contagious.

Dr. Tomasi, at the 12th Italian Congress stated that he recognized its epidemic character and had often found it contagious.[3]

According to Nutter it is a transmissible, contagious disease.[4]

Jaworski and Chrastowski report five cases in one house which had not been free from pneumonia since 1860. The patients had been cleaning out a ditch and the same pneumococci were found in the ditch as in the exudate from the lungs.[5] Kuhn reports a pneumonia infection series affecting in the same household father, mother, daughter, son and his child.[6]

A. Ross Matteson reports three cases of double pneumonia occurring simultaneously in one family.[7]

Whether Jurgensen had in mind any direction in which to look for positive proof he does not state; but light commenced to dawn in 1882, when Friedländer's microscopical investigations gave prominence to the germ theory of disease in connection with lobar pneumonia, which discovery, followed up by other skillful and enthusiastic microscopists, has given such impetus to the investigation and thrown so much light on the subject that the solution of the problem is well nigh assured.

Bremner has mentioned six different varieties of bacteria as causing the disease. But the diplococcus of Fränkel has been shown to exist in most cases of pneumonia. Wolff found it in 94 per cent. of cases examined, most of the cases being verified by cultures.

Some of the experiments are decidedly interesting. 59 rabbits were inoculated successfully and typical pneumonia resulted only when the virus was introduced into the trachea; hypodermically, septicæmia; into the pleura, pleuritis; pericardium, pericarditis; and into the dura mater of a dog, meningitis and pneumonia.

Dr. Syers cities[8] five peculiar cases which he diagnosed pneumonia, in neither of which were there any physical signs within the chest; yet in all of them the disease began acutely, without apparent cause, with rigors, high temperature, movement of the alæ nasi, labial herpes and altered pulse-respiration ratio. In all a sudden drop in the temperature ensued on the day on which the temperature of pneumonia usually falls; in other words there was resolution by crisis.

He asks: "How is it possible to explain such cases as these (which are far from being of uncommon occurrence) on the supposition that after exposure to cold the lung is inflamed, the result of this inflammation being fever and the other symptoms of the disease?"

Bearing on this point we cite some of the conclusions recently reached by Messrs. Sée and Bordas in their observations regarding the pneumonia of la grippe and reported to the French Institute of Medicine.[9]

I. The lanceolated diplococcus of Pasteur and Talamon is always found in the lungs of individuals who have succumbed to fibrinous or lobar pneumonia.

II. By puncturing the spleen we have secured pure cultures of the lanceolated diplococcus in great abundance.

Digitized by Google

III. Rabbits inoculated with cultures from the blood of the spleen quickly succumbed with all the signs of fibrinous pneumonia.

IV. We consider pneumonia not merely as a local disease of infectious origin, but also as a disease which may become infectious in the sense that it may invade other organs.

If such be the case cannot the peculiar cases of Dr. Syers' be explained on the ground that some other organ or organs than the lungs were invaded by the diplococcus of pneumonia?

He cites another quite as interesting case. A young man, 17 years of age, was admitted to a hospital in a condition of stupor which had supervened on the previous day on a perfectly healthy state. No cause could be assigned for the illness except that he had been exposed to a hot sun. His temperature was 104.4°. He continued more or less drowsy with high fever and without any chest signs until the sixth day, when all the signs of lung consolidation appeared in the region of the right upper lobe. Soon after these signs appeared, strange to say the temperature dropped to normal, and he recovered, which seemed to the writer to be a case of constitutional rather than a local disease, and one which might have been taken for meningitis. Such being the case, is it not quite probable that some of the so-called cases of meningitis which recover are of a type similar to this one, of a pneumonic nature with marked cerebral complications, possibly even that organ being the seat of the disease, for the pneumococci are frequently found post mortem in the convolutions of the brain?

From our investigations of this subject we are frank to admit that we have made discoveries of which we had previously been ignorant, and we have come to the conclusion that acute lobar pneumonia is a constitutional, infectious disease and contagious under certain conditions. Exposure, fatigue, alcoholism, lack of proper hygienic surroundings, such as are found in poorly ventilated and filthy tenement houses, army barracks and prisons, undoubtedly act as predisposing causes, and render the system a fit dwelling-place for the pneumonic germs to multiply and cause a train of symptoms peculiar to pneumonia, just as other infectious germs cause symptoms peculiar to themselves.

To illustrate how fatigue may be a predisposing cause, it seems fitting to cite experiments[10] tried by Charin and Roger to show the relation of fatigue to the susceptibility to infectious disease.

They subjected a number of white rats to severe exercise (running in a whirl) for four consecutive days, seven hours each day.

Eight of these tired-out animals were inoculated with attenuated anthrax virus, and also four healthy ones. The result was that seven of the eight died, while all the others lived.

Thus we may readily see why epidemics of pneumonia break out among soldiers broken down by hardships. Those whose vital powers are vitiated by prison life or wasting disease, such as typhoid fever, are much more susceptible to pneumonia than those who are in full vigor. The more readily can we understand this when we realize that it has been established by microscropists that the same diplococcus found in the pneumonia exudate is also found in the respiratory tract in a state of health, lying in wait as it were for an opportune moment of attack.

If pneumonia be the constitutional, infectious and contagious disease which we have endeavored to prove it to be by the several authorities and cases cited, instead of the local disease which our forefathers and we until recently believed it to be, shall our whole system of treatment be revolutionized?

We can all certainly agree as to the importance of improving our prophylactic treatment by utilizing every means at our disposal, and urging upon the health authorities the necessity of vigilant care in making all sanitary measures as perfect as possible.

A decidedly novel method of treatment by injection into the trachea, which is not without weight as an argument on this subject, has been advanced by Pignol,[11] who has treated three cases of pneumonia by giving aqueous solutions of naphthol in the proportion of 0.2 naphthol to 1000 of water. The quantity injected was 250 to 350 cm. The sittings lasted for ½ hour. The injections were well borne and a marked diminution of dispœna was noticed after each one.

The writer predicts brilliant results for this method in cases of pulmonary affections of an infectious nature.

REFERENCES.

[1]*London Lancet*, 4-12-1890.
[2]*Boston Medical & Surgical Journal*, 3-27-1890.
[3]"Annual," 1888.
[4]"Annual," 1889.
[5]Ibid. [6]Ibid. [7]Ibid.
[8]*London Lancet*, 4-12-1890.
[9]*Journal of the American Medical Association*, 4-19-1890.
[10]*Boston Medical & Surgical Journal*, 5-8-1890.
[11]*Journal of the American Medical Association*, 5-10-1890.

CESTODES OR TAPE-WORM.

By C. R. Keyes, M. D.

Stillwater.

The subject of this brief paper is one which, perhaps, is not of as vital importance to the practitioner of medicine as many others that might be named, yet the tape-worms are met with more or less frequently by nearly every physician; they are always extremely unwelcome guests to those who

Digitized by Google

possess them, and are often very difficult to dislodge. The physician who is successful in ridding a patient of such an intruder generally gains at least one friend and though that one may gain many more.

Of the numerous species of the tænia only two, tænia saginatum and tænia solium, are commonly found in the mature state in man. A third species, the bothriocephalus latus, is sometimes met with, and very rarely some of the other varieties.

The beef tape-worm or t. saginatum is probably the most frequently met with, for the reason that rare beef is a more popular article of diet than rare pork. The second species, or pork tape-worm, is more difficult to expel, because by means of the hooklets with which its head is armed, it attaches itself more firmly to the intestinal mucous membrane.

The mode of development of the tænia is sufficiently well understood to need no description in this paper.

The prophylaxis, as regards the mature worm, is comparatively an easy matter. It consists simply in never eating underdone meats. As long as people persist in eating rare steaks, underdone roasts and raw ham, so long shall we be called upon to aid them in ridding themselves of tape-worms. It is doubtless possible for a person to become infected in the same manner that animals are by swallowing the eggs of the mature worm, which are found in the cast off segments; the embryo worms or cysticercus becoming encysted in the muscular or fatty tissues and being beyond the reach of medical aid, it behooves those afflicted with tape-worm to be cleanly in their habits and to get rid of the intruder as soon as possible.

A tape-worm may exist for a long time without giving rise to any symptoms leading to a suspicion of its presence, if, as is often the case, the stools are never examined. Frequently there are more or less of the symptoms of indigestion present; often a coated tongue, variable appetite, coliky pains in the bowels, and various other indications pointing to a disturbed intestinal digestion. Rarely there are serious nervous disturbances. Convulsions may occur. These symptoms are by no means always present with tape-worm and often occur in other intestinal disorders. Not infrequently the attention of the patient is first called to the presence of the intruder, by accidentally discovering the cast-off segments of worm in the stools, or detecting them as they emerge from the anus. The history of the case, together with an examination of the segments of worm passed with the stools, renders the diagnosis certain.

Without the presence of the segments a positive diagnosis cannot be made.

Treatment. The object of treatment is the expulsion of the entire worm. As long as the head remains attached to the mucous lining of the bowel, it, and the narrow threadlike portion of the worm next the head are likely to remain, and the parasite to continue to grow. Almost any active cathartic will bring away a large portion of a mature worm. Among the many remedies that have been used, with more or less success, for the expulsion of the tænia are oil of turpentine, in one or two ounce doses, made into an emulsion with white of an egg and sugar, to be followed by a cathartic if needed to move the bowels. Oil of male fern, usually given in capsules, is another quite popular remedy. The dose is from one to two drams. It should be taken fasting, and followed by a cathartic. A decoction of the bark of pomegranate root is a remedy sometimes used, also an emulsion made from the seeds of the common pumpkin. The remedy to which I wish to call particular attention is pelletierine, an alkaloid obtained from pomegranate bark, and but recently introduced to the profession,a remedy which I think bids fair to supersede all others in the treatment of tape-worm.

Within the past few months I have had three cases of tape-worm under treatment which I will briefly report.

Case I. Frank W., aged about 30 years. Had been passing segments of worm at intervals for several weeks. His general health was but little impaired.

There was some little digestive disturbance, with a craving appetite, the patient stating that it seemed impossible to eat enough at one regular meal to satisfy his hunger until the next. He was given a moderate purgative and instructed to abstain from food, with the exception of a glass of milk, for about fifteen hours, when a full dose of oil of male fern and kamala was given in capsules, followed in about an hour by an ounce of castor oil. Result of treatment, several watery stools, considerable nausea, coliky pains in the bowels and the expulsion of probably fifteen or twenty feet of worm. A careful examination failed to reveal the head, and judging from the appearance of the part expelled, there were two or three feet of the anterior thread-like portion of the worm remaining attached to the bowel. The patient suffered for several days from gastro-intestinal pain and indigestion, feeling, as he expressed it, as though he had been turned inside out.

Case II. John S., adult. Had suffered from tape-worm for about two years. He had tried many dtfferent remedies. About Nov. 16 last he was given the male fern and kamala capsules and about thirty feet of worm were expelled, but not the head. Three months and a half later, or about March 1, the segments of worm again appeared in the stools and he applied for treatment. About this time my attention was called to pelletierine as a tæniacide and I determined to test its virtues.

The patient was ordered to fast, as in the pre, ceding case, from noon until the next morning-when the bowels were emptied by an enema and

Digitized by Google

one-half an ounce of Tanret's pelletierine was given. This was followed in about thirty minutes by one ounce of tincture of jalap in a little sweetened water. A little milk was allowed but no solid food. The cathartic acted in about two hours and the entire worm was expelled, knotted like a tangled skein of yarn. It measured thirty-four and one-half feet, and, presumably, had occupied about three and one-half months in attaining that length. This worm I judged to be of the species tænia solium.

The only discomfort complained of by the patient, after taking the medicine, was nausea, and a feeling of giddiness like that experienced by one intoxicated. There was but little gastro-intestinal irritation, and the resulting debility was very little greater than would ordinarily follow the administration of an active cathartic. This I consider a good test case as the other common remedies had been previously tried in vain.

Case III. T. McC., adult. In this case there were no symptoms present that would lead one to suspect tape-worm until the cast-off segments were accidentally found in the stools. The preparatory treatment in this case was the same as in the preceding one. A half ounce of Tanret's pelletierine was administered and, twenty minutes later, an ounce of tincture jalap. Fearing lest the cathartic would not act with sufficient promptness, a second dose of one-half ounce was given an hour and a half after the first. The worm was discharged with the first stool, with the exception of about two feet next to the head, which was broken off by the patient, in an attempt to pull the worm away with the fingers. An enema was at once given which brought away the remainder of the worm, including the head. Its length was thirty-three feet. The sensations produced by the medicine were similar to those in case second. The man was able to resume his work on the following day.

The preparation of pelletierine used in these cases, as I before stated, was that prepared by C. Tanret, Paris. The tannate of pelletierine in one-half to two-thirds grain doses, for adults, would doubtless answer equally well, if a reliable preparation was obtained.

I am well aware that two cases are not sufficient to demonstrate the value of any remedy, but, from my own experience and the favorable reports of others, I believe pelletierine to be the remedy, *par excellence* for tape-worm, and that it is worthy an extended trial by the profession as a substitute for the nauseous, bulky, drastic remedies now in use.

A FEW NOTES ON THE SEQUELÆ OF LA GRIPPE.

By A. T. Conley, M. D.,

Cannon Falls.

Since the first tidal wave of la grippe, sweeping westward like the course of empire, submerged the United States at the beginning of the present year, lesser waves at irregular intervals have continued to ripple over us. At least, there have been high tides and low tides, due in part, perhaps almost wholly, to changes in temperature. This was especially noticeable during the first part of May, which was cold and disagreeable, and the grippe was almost as severe as when it first appeared in January; still, since it first reached our shores it has never entirely receded. It is probable, however, that this epidemic of influenza differs but little from others which have occasionally visited us from the earliest history of our country, either in mode of attack, duration or sequelæ. But in severity it has probably never been equaled. Two per cent. is said to be a fair estimate of the death-rate in previous epidemics, including all complications and sequelæ.

Few statistical data are yet at hand in this epidemic, but in looking over the vital statistics in our village of about 1,500 inhabitants, for the last ten years, for the first four months of each year, I find a sixty per cent. higher death-rate for this year than in any other. One life insurance company, the Mutual, of Galesburg, Ill., gives the number of deaths among its members for the months of March and April this year, at fifty-five; of this number (in its printed statement sent to members, of cause of death) eighteen are marked with a star, which is explained in the foot-note to mean that they died "directly or indirectly from the effects of the grippe."

A careful study of the reported causes of death does not reveal the fact that any one of these eighteen died of la grippe or influenza *per se*. In twelve cases it was pneumonia. In two cases bronchitis. In one case congestion of the lungs. In two cases meningitis. In one case enteritis. From this report it seems that the sequelæ of la grippe for the two months reported, killed one-third of all that died, and among a class also that is supposed to be the most healthy. For we all know the young and old have been its most easy victims. If then it kills one-third of the most robust and healthy, it is a conservative estimate to conclude that it kills one-half of the young and tender and of the aged and infirm. Of course the two cases cited make but slim evidence to draw conclusions from, yet as far as they go they would seem to prove, indirectly, that a two per cent. mortality in this epidemic is too small, and yet when we take into account the large number attacked it may not be so far out of the way after all.

Digitized by Google

Undoubtedly of all the sequelæ of la grippe, pneumonia is the most fatal. Still the general verdict seems to be that pneumonia following la grippe is a much milder form than we usually meet with, and that the death-rate is small in proportion to the number of cases attacked. Few diseases are more dangerous to life after the sixtieth year than pneumonia. A year ago this past spring and winter all my cases past that age died. This year they all got well with one exception, and in that case the patient was 82 years old and died of heart-failure. In a well-marked case of pneumonia following la grippe this spring, in a strong, hearty man sixty-three years old, the patient passed through all the stages from the initiatory chill up to the crisis, and was pulling for the shore on the *fourth* day. This spring and winter past I have treated about forty cases of this grippe-pneumonia and the rule has been a very mild form with a few decided exceptions. One of the latter was an eleven-year-old boy, who for four consecutive days and nights, sleeping or waking, breathed about one hundred times per minute. As but one lobe of one lung was affected I put this rapid respiration down with the thousand and one nervous phenomena met with in this disease. The boy made a good though tedious recovery.

Among the most interesting and at the same time perplexing sequelæ have been these nervous troubles. Among those I have noted I will mention supra-orbital neuralgia and other forms of neuralgia. Myalgia, usually in the lower extremities of the aged. Palsy, with partial paralysis. Hysteria, hypochondriasis, irritability, sleeplessness, restlessness, and under the same head might be classed a list of much graver disorders, among them meningitis, cerebral hemorrhage, cerebral abscess, heart failure and general prostration.

A young man who used tobacco excessively, both smoking and chewing from childhood, was seen two weeks after having the grippe. He had a feeble, irregular pulse, thirty beats faster when standing than when sitting down. If he tried to use his hands or legs there was such a palsy developed that he could with difficulty walk or feed himself, but if he made no attempt to use his limbs there was no trembling. The skin was yellow, appetite poor and a general weakness complained of. I brought the use of tobacco down to a minimum and tonics did the rest, although it took him two months to get entirely well.

Another case fainted twice during the first week after being taken with the grippe, and during the whole time since, about three months, weekly, often daily and occasionally many times the same day, he is seized with faintness and vertigo, and as he describes it, "a panic seizes me and I am all used up for a few moments." These symptoms have become so persistent and annoying that he has been obliged to leave his store and try what a vacation and out-door life will do for him. While these symptoms are probably largely nervous or hysterical, yet there is just enough of something else to suggest heart-failure.

I have seen two fatal cases from some obscure, lingering brain trouble with symptoms of abscess; one in a man forty years old, with a history of brain trouble for years, from an injury; the other, a child, after having grippe and pneumonia. I saw one case of apparent abscess of the thyroid gland which discharged internally, with alarming symptoms. Before breaking, the gland had the appearance of a good-sized goitre.

Enteritis and ileo-colitis have been quite common and have often run a tedious course. I have one case under treatment now that has lasted six weeks.

I had one case of tubercular peritonitis following la grippe, in a young woman twenty years of age, strong and healthy before the attack, with no family history of tubercular diseases. The case ran a rapid course of a little more than three months, without *any* acute symptoms or pain. The lungs were never discoverably tuberculous. Vomiting was almost the only annoying symptom. Bowels distended and hard to the touch, slightly tender but absolutely without pain. Slight diarrhœa from the first, two to four passages a day, or in twenty-four hours. She had the usual hopeful and cheerful temperament of the consumptive, always thought she was growing better and fully expected to recover up to the very day of her death.

Probably cases of the kind reported and many other varieties of sequelæ of la grippe could be reported by many physicians present, but just how many are true sequelæ is a question often hard to determine. Some undoubtedly have been simple coincidences, an accidental following. Such may have been the last case reported. Yet one thing seems well-established: a severe attack of la grippe leaves the system in such a depressed and prostrated condition that it falls an easy prey to all manner of ills that flesh is heir to.

The respiratory system suffers most; after that the nervous, and lastly the alimentary tract.

SURGERY.

F. A. BLACKMER, M. D., CHAIRMAN.

TWO CASES OF TRACHEOTOMY.

BY F. A. BLACKMER, M. D.,

Albert Lea.

Our Society meetings would be more profitable if the papers read were shorter and confined to the facts in each case. The report of a case should not be a treatise on the subject. The text-books can be consulted for that. It seems a lost labor to write a paper and have the section for which it is written coldly refuse to hear it; but that is inevitable if papers are too long. I shall only detain

Digitized by Google

you with two cases of tracheotomy I have recently had, that seem to require recording.

November 11, 1889, I was called by Dr. Wedge to a little girl, 11 years old, suffering with membranous croup. The child was extremely livid, respiration was spasmodic and labored; she was unconscious. By the time a few arrangements could be made she had ceased to breathe. An incision was made into the trachea without any ceremony or regard for hemorrhage; the tube was thrust in, and artificial respiration begun and continued for about thirty minutes when she began to breathe. No trouble was experienced from hemorrhage.

April 12, last, I was called by Dr. Preston to operate on a little boy, eleven years old, suffering from diphtheria. His breathing was very labored and exacerbations of choking came on very frequently. He was very purple. Death seemed inevitable in a few hours. We gave him chloroform and opened two rings and introduced the tube. The chloroform seemed to act with great suddenness and the narcosis was very profound. It may be that chloroform acts with unusual promptness in diphtheritic poisoning; at least it seemed to in this case.

A good practical point in this operation is to hook a long tenaculum into one side of the line of incision, through the rings, as a guide, and to keep from opening the trachea too much to one side. This hook should be left in and another one hooked into the opposite side, and both held apart by an assistant so that the tube will enter readily.

In both of these cases large quantities of mucus and membranous matter was blown out through the tube, so much that it seemed to me that intubation would have been inadequate in either case. Medication was confined to tonics and stimulants, though some effort was made to use a little carbolic acid and eucalyptus in one case, but it seemed rather harmful than otherwise. The great remedy was steam. We applied this by putting a long tube into the top of a gallon tin pail. The pail was set on a small kerosene stove and filled with hot water. A jet of steam was kept constantly bathing the opening of the tube while it remained in, which was four days in each case. The inside tube was frequently cleaned out, but the outside one was not removed at all in one case, and in the other one only once, and we were glad to get it in again, as very little air could enter without it. When the tubes were finally removed the wounds were left to granulate and were healed in a few days.

If this paper is of any value at all, it can only be in calling attention to the importance of steam in the after-treatment of tracheotomy, and in emphasizing the fact that intubation cannot take the place of tracheotomy in all cases, as some seem to think, and finally that tracheotomy should not be undertaken at all unless a careful after-treatment is to be followed up.

The discussion of this paper was opened by Dr. Justus Ohage, of St. Paul. After complimenting the author on his success and his rational conduct of the after-treatment, he dwelt at some length on the different merits and drawbacks of intubation compared with tracheotomy. He said that the performance of any surgical operation, no matter how well it was done, would not insure success unless followed up by a rational and judicious after-treatment. This holds good especially in tracheotomy. The surgeon who thinks his duty is done when the trachea is opened had better not pick up the knife at all but rather do intubation. After opening the trachea he always waited some time, say 5 to 10 minutes, before introducing the canula, so that by the efforts of coughing as much of the membrane may be expectorated as possible. After the canula, which is always a double one, is introduced, a constant spray of plain steam is kept going incessantly against the tracheal wound, to prevent drying up and incrustation of membranous deposits below the canula. This is kept up with but little trouble until the canula is removed, which is done on the 5th or 6th day. Any apparatus, a steam kettle with a long nozzle, etc., will answer this purpose. When necessary the inner canula is taken out, cleansed and put back. All this can be done by a commonly intelligent member of the family and does not require the presence of a trained nurse. Intubation has no doubt some good points; one of them is that consent is readily obtained and to this is due in a great measure, he believed, the favor it has received by many of the profession and consequently favorable reports by them.

During the last year he treated seven cases of so-called membranous croup, viz: diphtheritic laryngitis. Of these four recovered by the application of ice to the larynx, calomel internally and calomel inhalations. On the other three he performed tracheotomy and these three also recovered promptly. If they had been all intubated, about half or more of them, according to statistics, would have died.

Intubation certainly deserves a place in surgery, but only a limited one and never can take the place of tracheotomy. The dangers of tracheotomy are almost *nil*, and if the after-treatment be conducted properly, as it ought to be, the results will show 50 per cent. recoveries as they do in European hospitals. Intubation is fashionable now, but after the enthusiasm shall have died out and made room for deeper thinking and more acute reasoning as to its merits and demerits, it will be done less often than at the present time.

Digitized by Google

ACUTE INTESTINAL OBSTRUCTION.

By J. W. Macdonald, M. D., L. R. C. S. E.
Minneapolis.

The almost uniform failure to cure acute intestinal obstruction by medical treatment, has led the profession to look to surgery as the only hope of rescuing a class of cases otherwise practically hopeless. The operation has had a long but unfavorable history. For centuries past it has been approved and as strenulously condemned. Almost uniform failure has attended its employment, until recent years, when the advancement along the whole line of abdominal surgery has thrown new light upon its use, and inspired its advocates with new hope.

Acute intestinal obstruction practically exists under three conditions:

1. Intussusception.
2. Volvulus.
3. Strangulation by bands or through apertures.

By intussusception or invagination of intestine is meant a prolapse of a part of the bowel into the lumen of the adjoining part. One-third of all the cases of obstruction are due to this cause. One portion of bowel grasps, swallows as it were, the portion immediately above it. Grasping the bowel as if it were food more and more is invaginated, until, in extreme cases, several feet of bowel may be involved. The name intussuscipiens is given to the receiving portion of intestine, while the part invaginated is called the intussusceptum.

This unnatural condition is followed by serious consequences; adhesions form between the opposed surfaces of peritoneum, the walls become swollen and inflamed, curving of the intestines by dragging of the mesentery is produced, intense congestion results, followed by discharge of blood from the rectum, or gangrene, and finally complete obstruction.

According to Senn, sloughing is caused by obstruction to the return of venous blood by constriction at the neck of the intussusception.

Curiously enough intussusception is very commonly found in the post mortem room, one body in four showing this condition. It is also believed that many cases right themselves, and that a large proportion of cases of acute colic belong to this class (Greig Smith).

The most common situations are (1) in the small bowel, and generally the lower part of the jejunum. It occurs in the ileum in the proportion of one case to four of the former class. (2) The colon may be the seat of an intussusception at any part of its course, but it is by no means common and when it does occur only a small portion of bowel is involved. (3) The most common of all situations is the ileo-cæcal region, and here it may be produced by the ileo-cæcal valve forming the apex of the intussusception, and passing up the colon followed by the cæcum and ileum, or the ileum may pass through the ileo-cæcal valve and be invaginated up the colon.

A rare and complicated variety is where a primary invagination of the end of the ileum is either passed through the valve into the colon, or invaginated into the colon along with the cæcum (Greig Smith).

By volvulus is meant an occlusion of bowel by torsion or rotation round its axis of attachment. This may be caused by simple twisting, or two suitable coils may become intertwined.

The sigmoid flexure is the most common situation, constituting two-thirds of all the cases. The tendency in this situation is increased by the shape of the bowel, the length and loose attachment of the mesentery, and the tendency of the bowel to become overloaded and displaced by collections of fæces. The bowel may be twisted once, twice or even three times around the axis.

Next in point of frequency is volvulus of the cæcum or cæcum and colon adjoining. Here obstruction is easily brought about; even an acute flexure of the cæcum is sufficient to block the passage; it may be produced by intertwining of the small intestine. In the ascending colon the disease is rare and is due to anatomical abnormality. In the cæcum it may be subacute or chronic.

The small intestine is rarely the seat of volvulus. An old hernia with a long mesentery may be a predisposing cause.

Strangulation by bands or through apertures is internally what an ordinary hernia is externally. In both cases a loop of bowel is constricted by a tight, unyielding opening obstructing its lumen and compressing its vessels. In both cases strangulation results, producing symptoms and calling for treatment almost exactly alike.

Bands of organized inflammatory material, the so-called "peritoneal false ligaments," occur in an endless variety of forms. They may be round or flat, short or long, single or multiple. The bowel may slip under the band when short, or it may be caught in a loop or twisted when the band is long. The small intestine and most commonly the lower part of the ileum is most likely to be the seat of strangulation.

The prognosis of acute intestinal obstruction is exceedingly unfavorable. In ordinary strangulated hernia the chances of recovery are almost *nil*, yet there is a bare chance; for gangrene of the bowel may take place with the formation of a false anus. In strangulation by bands there is not even a chance. If gangrene takes place there is but one termination—death. It is believed that spontaneous recovery after volvulus is unknown.

Intussusception in a very small proportion of cases may right itself and the patient recover, but such fortunate terminations are few and far between.

The diagnosis of acute obstruction is of the utmost importance, and in many cases exceedingly

Digitized by Google

difficult. The symptoms are, roughly speaking, those of strangulated hernia, in an aggravated form. The abdominal pain is agonizing, it may be intermitting in character, probably owing to the intermittent character of the constriction (Treves). The pain may be like severe colic; at other times it conveys the sensation of a tight band around the abdomen. Besides pain the prominent symptoms are vomiting, constipation, collapse and tympanites.

Vomiting is one of the early and most important symptoms. At first the ordinary contents of the stomach and bowel are voided, either in gushes without much effort or with violent retching. Later the character of the vomit is bile-stained, then of a dark, grumous material, the so-called coffee grounds. Finally fæcal matter is vomited, more or less diluted. This requires that the constriction should not be higher than the jejunum. Constipation is of the most obstinate and insuperable nature When once the intestine below the seat of constriction is emptied, absolutely nothing passes from the bowels, except in certain cases of intussusception when blood may escape.

Is it possible to diagnose the variety of obstruction? In certain cases it is. An examination by the rectum will in a small proportion of cases discover the bowel descending when the case is one of intussusception. This form occurs particularly in children. The pain comes in waves, gradually gaining in intensity till a climax is reached when it for a time subsides. Vomiting in this form is not so characteristic a symptom as in the other varieties; it may be a feature from the outset, it may not appear till late; it may be severe and copious, it may be slight and almost painless or it may not exist at all. The abdominal wall is seldom distended; indeed it may even be retracted. There is one symptom, however, which is valuable, and that is a discharge of blood from the rectum, which is often associated with tenesmus and diarrhœa. If besides these a tumor can be found by palpation through the parietes, we have got about all the evidence that we can have that the case is one of intussusception.

So rapid is the progress of this disease that death may take place within twenty-four hours. In more favorable cases the fatal event is postponed for several days; in still more favorable the condition may become chronic and last for several weeks.

In volvulus of the large intestine there is usually a previous history of constipation. It is commonly found in males above middle age. Its usual situation is at the sigmoid flexure. The pain comes on suddenly, is felt at the hypogastrium or in the back. Constipation is marked from the first; vomiting is a later development and is not necessarily severe. Fæculent vomiting occurs in about 15 per cent. of the cases. In the later stages of the disease there is a tenderness on pressure.

Volvulus of the small intestine and strangulation by bands so closely resemble each other in symptoms that it is probably impossible to distinguish them. In both the pain is severe and continuous from the outset, with frequent exacerbations and felt most commonly at the umbilicus. There is no tenderness on pressure. The vomiting begins early, is frequent, copious, and becomes stercoraceous about the fourth day.

In the following table I have tried to place side by side the diagnostic differences in the three forms of obstruction:

	STRANGULATION BY BANDS.	VOLVULUS.	INTUSSUSCEPTION.
AGE.	Young males.	Males above 40.	Young children.
PAIN.	At umbilicus severe from beginning.	Hypogastrium or back. Comes on at once but not so severe; intermits.	Prominent. Comes in waves.
VOMITING.	Early, frequent, copious stercoraceous 4th or 5th day.	Late or not at all; never very urgent; 15 per cent. of cases fæculent.	Very variable symptom.
CONSTIPATION.	Complete from first.	From first.	Blood from bowels with tenesmus.
ABDOMINAL DISTENSION.	Not at first marked; no tumor.	Rapid accumulation of gas, causing great distension. No tumor.	Usually absent; tumor felt through parieties or in rectum.
DURATION.	Die about 5th day.	Average 6 days.	24 hours to several days or weeks.

Treatment. We have to deal with a disease that is invariably fatal in from 24 hours to 6 days. Volvulus has never been known to recover under medical treatment. Spontaneous recovery in cases of strangulation by bands is beyond the bounds of possibility, and recovery in the cases of intussusception is a matter of the merest chance. Looking at the matter in this light, the choice is left us either to stand by with idle hands and see our patient die or to make the attempt to save his life by timely operation.

The mortality may be fairly stated at 95 per cent. in cases treated without operation.

The statistics of laparatomy for obstruction have been studied by many writers, including Schramms in Germany, Delaporte in France, Treves in England and Whithall, Sands and Ashurst in America. Of 346 cases collected by Ashurst the mortality was as follows:

Intussusception 65 cases, mortality 75.4 per cent.
Volvulus 29 cases, " 71.4 "
Strangulation by bands, 119 cases, " 67.8 "

In the aggregate of 346 cases from all causes the mortality after the operation was 69.3 per cent. We thus see that the chances in favor of operation are as 95 to 69.3, or a saving of 25 per cent. In Ashurst's earlier statistics he found the mortality

Digitized by Google

to be 67.6, and argues that contrary to the history of most operations, the gravity of this one increases rather than diminishes as it is more often resorted to.

It must, however, be remembered that statistics of this character are misleading. The difficulty of getting the results of unsuccessful cases must always be great. The operation has hitherto been resorted to in the most hopeless cases, and as a rule when every other means had failed and death was imminent. With increasing confidence and diminished fear of operating, it is likely that the operation will be resorted to at an earlier period and the main danger will be eliminated—the danger of delay. An early resort to operation might confidently be expected to bring about such good results as have followed the early use of forceps, as compared with ancient practice, or the success which follows early herniotomy. Given a competent operator, cases treated before abdominal distension has come on, before the bowel has become inflamed or gangrenous, before adhesions have formed, before the patient's strength has become exhausted, would it be too much to say that the mortality would be reduced to fifteen per cent., as predicted by Dr. Greig Smith?

With the details of the operation I will not tax your patience. If the patient is seen late, it may be impossible to give an anæsthetic, owing to the danger which attends vomiting in this condition. Cocaine can be injected along the line of the proposed operation, and a short exploring incision made in the middle line. This may save the patient's life. When he is in a position to bear it the cause of obstruction may be sought for and the operation completed.

For most cases an incision midway between the umbilicus and pubes, in the median line, and sufficient to admit two fingers, will be most convenient. To find and relieve the obstruction is sometimes no easy task, for the intestines are distended and the abdominal walls tense and hard. Dr. Smith makes a departure from the older directions which are all very well from a pathologist's standpoint, and expresses himself as follows:

"I believe that the best means of reaching the seat of constriction will be by inspection of the bowel presenting at the wound. There is high probability, wherever the cause lie, that the most dilated coils will rise nearest the surface; and, the greater amount of bowel being within three inches of the umbilicus, there is a further probability that the most dilated coils will be within sight. Very gently they may be moved, first on one side and then on the other, as well as upwards and downwards. The most dilated portion, which will be also the most congested or not far off it, is fixed and followed in the direction of increasing distension and congestion, wherever that may lead. It will certainly lead to the stricture. The whole manipulation may be carried out with two fingers. If, now that the obstruction and the nature of it are discovered, it seems necessary to prolong the incision to relieve it, this can be done in the direction which is most convenient.

"Should this method not succeed (it has failed only once in twelve cases on which I have operated), I should then recommend the insertion of the hand to explore. Should this also fail, I should recommend that the most distended portion of the bowel be permitted to extrude under a large, flat sponge, wrung out of a warm antiseptic lotion. One end of the loop will extrude less readily than the other, and one end will appear to become increasingly congested; these characters are sure guides to the seat of obstruction. When the bowel begins to show that it is fixed inside the abdomen, or when the evidences of congestion are striking, the finger inserted along this portion of the bowel will detect the origin of the mischief."

Once the cause is found its removal may be attended with some difficulty. Bands may be divided between ligatures, an opening may be enlarged as in a case of an ordinary hernia, a volvulus may be untwisted, an intussusception drawn out. To do this it may be necessary to incise the bowel and draw off its contents. In some cases a portion of gangrenous and diseased bowel will have to be resected. Other cases may require the formation of an artificial anus.

These conditions I merely name; the surest way to obviate them is to operate early, and before they occur, and in this direction I believe lies our only path to success.

GLANDULAR TUBERCULOSIS.

By C. H. Mayo, M. D.

Rochester.

Several years after the discovery of the bacillus of tuberculosis, first considered only in its relation to phthisis, bacteriologists and pathologists succeeded in classing many of the chronic osseous diseases, as well as those prolonged inflammations of serous cavities, as the result of the same germ action.

Later, and not very recently either, a class of disease designated in older works by the comprehensive terms scrofula or struma has been added to this list, and it is to these cases we wish to call attention in this paper.

In a study of the causation of disease, one of the most important elements we may consider to be a weaknees or lack of vital force, possibly a want of development of certain structures formed by one of the blastodermic layers.

In some cases we have a lack of epithelial resistance taken in a general sense.

Thus we cannot but notice a peculiar susceptibility of a certain class to skin diseases, of another to lung difficulties, and with but little experience

Digitized by Google

learn to read this as if marked over these patients, and we can usually elicit a concomitant family history, possibly showing whole families destroyed by this scourge or with allied disease.

The same can be said of another class marked by lymphatic weakness, and it is not uncommon to treat several members of the same family for these glandular enlargements usually found in the neck. We believe that the tonsils have more than a passing relation to the cervical glands as the bearers of infection, and are certain that they have been the medium in a few cases which we had under our care for some time.

We may recognize a diathesis, an inherited or acquired weakness rather than an inherited disease.

Our older writers recognized tuberculosis or rather its results, but limited its application to phthisis, and in writing on the glandular diseases, well noting a like diathesis in both cases, they did not connect the common ætiology of the two.

In this paper we shall accept the theory that there is a common ætiology.

In considering the fatal effect of tuberculosis, it is probable that death results primarily only when we have this process affecting the brain, which result is due to pressure.

With the development occurring in all other places, death as a rule results from suppuration and its consequences, produced by a mixed infection.

When occurring in the lungs, we have every advantage for growth and development by an enormous blood supply, yielding walls having but a small amount of connective tissue and with open air passages, giving every advantage for mixed infection and no facility for drainage.

In our treatment of these glandular cases we have made a thorough trial of iodine in its various forms, internally, externally and by hypodermic injection.

Locally and by injection it was found in our hands, at least, to be too irritating, in some cases seeming to increase rather than to alleviate.

The result was very similar with the use of glycerine, iodoform, alcohol and various other similar remedies, all these having the additional disadvantage of being very painful.

With internal medication we came to the conclusion in regard to the use of iodine, that it was impossible to so saturate the system as to have a destructive effect on the bacilli.

We also experimented with arsenical preparations, in one case carrying their administration to the extent of a drachm per day of Fowler's solution without relief.

So far the specific for tuberculosis has not been discovered, and we have no remedy which exerts a cell selection upon this formidable disease.

We now limit our treatment to one of support by various hygienic measures and tonics, deriving great benefit from the administration of cod liver oil.

Much concerning the treatment of these cases may be learned by watching nature's process of dealing with foreign bodies, which is by absorption, encapsulation or evulsion.

In many cases we may have an inoculation of small dosage, the gland or glands may enlarge and by absorption or encapsulation the invasion proceed no farther, showing an individual ability to overcome a certain amount of poisoning, or we may have evulsion evidenced by pus formation which eventually works to the surface, possibly not before a succession of changes by absorption and repeated softening.

Again in a very few cases we have an inoculation of large dosage or possibly an extreme susceptibility of the individual; in either case we have a rapid invasion of the lymph system and many of these cases die from general tuberculosis.

This clearly gives our indication for surgical treatment.

In cases seen early, to first make an effort to raise the natural resistance by internal medication combined with hygienic measures as we have outlined, and failing to get absorption or encapsulation to use surgical measures to prevent further invasion, also to save months of disfigurement to be followed in the end by months of suppuration from ugly sinuses, which heal for a time only to break out again in discharge, until the last vestige of the gland attacked is destroyed, while the scars thus produced seem never done contracting.

A correct operation is the complete removal of all glands possible with their vessels. This requires very careful dissection, but its application is often limited as we may not be called upon for advice until one or more glands has softened or suppurated. In such cases we assist nature's effort by opening the sac and removing its contents with a sharp curette, and do not attempt to remove the barrier already proven effective. Then to enable us to safely leave the capsule it is thoroughly swabbed out by chloride of mercury solution, 1-500, and its cavity packed with iodoform gauze, sutures of silk inserted but not tied and the dressing left seventy-two hours.

The iodoform pack is then removed, the wound approximated and the sutures previously inserted tied. We employ the same method of dressing with those cases in which we have ruptured the capsule and contaminated the wound in removal.

All other glands enlarged and of sufficient firmness can be removed entire and the wound closed aseptically.

In dealing with all tuberculous deposits it is of the utmost importance to be aseptic, and to make sure of it be antiseptic, the cases thus treated will heal readily; others will suppurate and require repeated dressings.

A peculiar phenomenon occurring in many

Digitized by Google

cases packed with iodoform gauze is a rise of temperature on the second day; this may be the result of nerve pressure, the irritation of a foreign body or the effect of iodoform, we are unable to say which, but have found it does not indicate wound complication.

With an operative experience of over twenty of these cases, most of which were hospital patients, we earnestly recommend surgical measures in such chronic cases and believe that the operation in selected cases is devoid of great danger.

THE RADICAL CURE OF BUNIONS.

By C. H. Hunter, M. D.

Minneapolis.

It is often with a feeling of wonderment, not unmixed with chagrin, that we lay down our authorities after consulting them concerning some of the commonest and simplest of ailments, so much of variance is there in their explanation and suggestions.

The literature of the humble subject to which I invite your attention does not escape this charge of lame and halting conclusion. Not only is there an evenly balanced opinion as to the causation of this too common affliction, but all authors content themselves with advising appliances, confessedly troublesome and inefficient, or operations, none of which have stood the test of time; meanwhile the afflicted toes continue aching. There must, I judge, be an idea abroad among the laity, that our cure of bunions is not very satisfactory, for such patients usually suffer in silence or consult the chiropodist in preference to the surgeon.

The unsettled state of opinion in regard to this disease, as well as the number of those unrelieved from its, at times, very great sufferings, must be my excuse for bringing the subject before you today.

It is my purpose to call your attention to an operation recently proposed by Dr. Fowler, of Brooklyn, for the radical cure of bunions, with an account of two illustrative cases, and allude to the pathology and etiology only so far as may be necessary to make apparent the reasonableness of it.

As to the pathology of bunions, there is not much chance for difference of opinion, it being generally agreed that it is inflammation and consequent thickening and induration of the soft parts over the inner aspect of the metatarso-phalangeal joint of the great toe, less frequently of the little toe, often extending to the periosteum and the bone. Exostosis may develope, suppuration occur in any or all of the tissues, and end in caries and destruction of the joint. Along with these results of the inflammatory process, there exists a marked deviation outward of the great toe.

It is at this point, relating to etiology, that opinions about bunions begin to diverge. Does the outward inclination precede or follow the bursitis and joint inflammation? One party contends that both the deformity and the bunion are due to narrow or short-toed, high-heeled shoes.

Our latest work on orthopedics, Bradford and Lowell, says: "The deformity is entirely the result of improper shoes."

A second party, Nelaton, Ashton, *et als.*, contend that the shape of the shoe is not the cause of bunions at all. They claim that there is an original, congenital deviation outward of the great toe, constantly increased by the action of the extensor pollicis and other adductors whose action is only feebly offset by the short and single adductor. The tendon of the great extensor can be felt, in bad cases, as a tight cord much displaced outward from over the centre of the joint, and whose action is certainly strongly to pull the end of the toe farther and farther outward. In this way the phalanx comes to articulate only with the outer half of the head of the first metatarsal bone. The line of union is now oblique to that of the other toe-joints. The inner and uncovered part of the head of the first metatarsal now receives the pressure of the shoe, averted, in a well-shaped foot, by the inward inclination of the great toe. It soon looses its articular cartilage and becomes at times enormously enlarged under intermittent pressure. I have been able to satisfy myself of the correctness of this description of the condition of the joint in two of those I have opened. The fact of the heredity of bunions is not denied. This would seem to indicate that there is another factor in the etiology than a badly-formed shoe. Of course without the pressure from the shoe, there can be no bunion, but not all those who wear narrow or short-toed, high-heeled shoes suffer from bunions; only those who have a congenital deviation of the great toe outward develope the bunion, and this would happen even in well-formed shoes, for the forward pressure of the foot would be received, not by the toe continuing the inner border of the foot, but by the prominent and exposed head of the first metatarsal bone.

Examination of the feet of children, especially of those in families whose members are known to suffer from bunion, ought to confirm or discredit this explanation. The ill-effect of the shoe has certainly not been apparent in the two cases I have operated upon.

The congenital dislocation of the toe is then the chief factor in the etiology of this disease, the *clino-dactylie* of French authors, and must be reckoned with in any plan of cure. We are not without advice as to treatment, the very multiplicity of which shows that none is thus far very satisfactory.

There is a variety of orthopedic apparatus, "cumbersome and troublesome," "inefficient," "exceedingly unsatisfactory" and "soon thrown away by the patient." These phrases are quoted, but they represent my own limited experience.

Digitized by Google

Tenotomy was at one time done a good deal, but proved disappointing, as we would now expect, knowing that the deformity lies in the misshapen and badly directed joint surfaces.

Other operative procedures proposed are:

Sub-periosteal resection of the head of the metatarsus (Huten), and complete resection of the joint, producing ankylosis, cuneiform osteotomy, (Baker). Amputation, followed in some cases by worse suffering in the rest of the toes. Removal of over-growths, leaving the deformity (Reverdin).

None of these have fulfilled all the indications, to correct the deformity, remove the rough, bony thickening underlying the bunion, and leave the scar in good position.

In the *Medical Record* of September 7, 1889, Dr. Fowler described an operation devised and done by himself in a bad case of bunions, which resulted satisfactorily.

To my mind this paper of Dr. Fowler's marks a real advance in the treatment of bunions. It is a radical cure, not accompanied by risk in the hands of those who have a just confidence in their aseptic methods.

Dr. Fowler, following Peterson, of Kiel, in his operations upon tuberculosis of this joint, attacks the joint from the outside, cutting backward between the toes, loosening the great toe sufficiently to allow turning it backward alongside the inner border of the foot; wedge-shaped pieces are then sawn from the joint surfaces of the first metatarsal and the phalanx thus exposed. The pieces removed from under the bunion are joined by the internal lateral ligament, leave a V-shaped depression, and represent from a half to two-thirds of the articulating surfaces.

The advantages claimed by Dr. Fowler for his operation are:

1st. Ease of access to the diseased parts and their complete exposure.

2nd. The incision is through sound tissue.

3rd. The external lateral ligament is cut, after which the toe falls readily back into good position.

4th. The exostosis is removed (Reverdin).

5th. Tenotomy of the extensor pollicis can be done through the same incision.

6th. The abductor pollicis is not touched.

7th. The scar is out of the way of future pressure.

The operation fulfils these essential indications so satisfactorily that it may seem superfluous to make any changes, but in studying the operation upon the cadaver, it seemed to me that the incision and the loosening of the toe injured, unnecessarily, sound tissue. I accordingly made a long incision on top of the joint to the inside of and parallel to the tendon of the extensor pollicis, dissecting off the tissues from the inside of the joint with the periosteum elevator, till the bony surfaces were well exposed, when I found I could easily remove the V-shaped piece from the joint with the bone forceps. The toe now came back into place.

The piece removed should include more than half of the joint surface. It can be made at an angle, leaving the larger portion on the under side, which gives a broad portion to tread upon.

I have operated thus on three joints with good results.

Mrs. F. had requested me to amputate her toe for a very bad bunion that had troubled her for seven years. I chose Dr. Fowler's operation instead, repeating his operation upon one bunion and doing that I have just described on the other. I passed a small rubber drain through a canula thrust through the sole just behind the ball of the foot, one end projecting through the upper cut, so that the cavity of the joint was drained perfectly. The feet were put in splints of bookbinder's board with a narrow margin turned up to fit along the inner border of the foot and great toe. There was no pain in this joint, and in the third week the patient walked without discomfort. I was not so fortunate in the other joint. Dr. Fowler's incision did not allow of so complete drainage of the joint cavity without other openings. A large clot collected, causing a deal of pain, ending in some suppuration, so that it was six weeks before the patient walked with comfort. It is now two months since she began walking in ordinary, broad-toed shoes. There is no pain. She is satisfied. It does not seem necessary to put the toe into a separate compartment in the shoe.

In a second case, a patient of Dr. Merritt, of St. Peter, I did the Fowler operation as modified above, with a satisfactory, immediate result. The wounds were completely healed at the end of the first week, the prominent joints gone and the toe deformity rectified. The patient is able to stand without pain. There was some pain but no other disturbance.

I claim for the modification of Dr. Fowler's operation:

1st. Greater ease in complete exposure of the diseased parts.

2nd. The incision is through sound tissue and the scar out of the way of pressure.

3rd. The external lateral ligament and extensor tendon can be readily cut if deemed desirable.

4th. The parts are not unnecessarily loosened and disturbed.

5th. Better drainage can be secured.

In this last case I used for a splint a sandal of sole-leather cut to fit and moulded to the foot. The end is split to allow the separate bandaging of the great toe.

In this method we have, as we may hope time will prove, a safe and efficient radical cure of bunions.

Digitized by Google

LITHOTRITY—OPERATION FOR ENLARGED PROSTATE.

By M. E. Woodling, M. D.

Minneapolis.

Case I. L. D., married man, nervous temperament. Penis small. Had phimosis and a urethral stricture, admitting No. 12 Am. sound, 1½ inches from meatus. Suffering with stone in the bladder. Hard chill followed first sounding to bring urethra to size for wash canulæ; gave pilocarpin and quinine; gave same remedies at time of operation. Great difficulty in introducing wash canula on account of small urethra, one doctor present remarking, "That's the first time I ever saw an instrument introduced into the penis larger than the organ itself." Patient well and attending to his regular business within a week.

Case II. H. F., single, æt. 46, strong, muscular, vigorous, apparently the picture of health, came to me about four years ago suffering from terrible vesical tenesmus, the desire to micturate being almost constant and irresistable. Penis small and retracted. Urethral stricture (No. 15 Am.), about an inch from meatus. No history of any veneral disease. For six years it had been necessary to micturate from every half hour to two hours, with occasional acute exacerbations of this symptom. No other pain or complaint. Bladder was very intolerant and strongly contracted. Prostate enlarged generally. No trouble in passing sound or catheter; but from this time when the catheter was used, no urine, not ever a drop, was passed without the use of a catheter.

After some three weeks' medication, including washing and sounding, patient was just about in his former condition, except that he had now to use a catheter. In this miserable condition he remained for 3½ years, when he came to me in September, 1889, and wanted relief at any cost.

October 13, 1889, through perineal incision, the hypertrophied and projecting lobe and part of the lateral lobe were curetted out and Sass' rectal speculum introduced and dilated to full extent (which gives a circumference of 4½ inches) and withdrawn thus. No leakage or dribbling of urine at any time. Bladder drained at first through glass tube inserted through wound and later through catheter in urethra.

Nov. 11 patient writes: "Am passing more water all the time," and later, "am still gaining." April 1, 1890, patient states that he has not had to use catheter for about four months and retains his urine over two hours during the day, and four to five hours at night. Patient is comfortable and contented.

Points of interest in case I. Contraindications for crushing and washing because of condition of penis and urethra and a very nervous subject. In case II. The constant and intense desire to micturate; complete inability to pass a single drop of water; ease of catheterization; lessened capacity of bladder, its irritable and evidently hypertrophied condition; no dribbling or incontinence after the drainage and dilating at neck of bladder; toleration of injury inflicted and finally improvement in patient's condition.

WHEN SHALL WE OPERATE IN PERITYPHLITIS?

By James E. Moore, M. D.

Minneapolis.

My object in bringing this subject before this Society is not to advance any new theory, but to add my convictions, founded upon study and personal experience and the experience of those who may take part in the discussion to the literature of the subject.

While the older authorities teach us that the disease is usually a perityphlitis *de novo*, recent observations teach us that the majority of cases begin as an appendicitis caused by impacted fæces or a foreign body. The appendix being the starting point and this being surrounded by peritoneum it necessarily follows that the inflammation, if not the pus formation, must be many times intra-peritoneal. Some good men have taken the extreme ground that it is always intra-peritoneal. The space devoted to the consideration of this subject in our standard works on surgery is not nearly so large as it should be, but this is excusable from the fact that it is only with our recent advances in abdominal surgery that it has been considered a surgical subject. Fortunately, however, our journals have furnished us with many valuable articles recently, written from a surgical standpoint. The best and most practical article in any book that I have found is that of Gerster.

He makes the statement (in which I fully agree with him) that the danger of the abscess breaking through into the peritoneal cavity has been greatly over-estimated. I am firmly convinced that those cases that have proven rapidly fatal have been cases that were intra-peritoneal and in which a local suppurative peritonitis became rapidly general, and that in the cases of true perityphlitis in which the abscess is extra-peritoneal the danger of this accident is very much less than we have been taught to believe in the past. This is certainly true if cases are operated upon at the proper time. The profession has been guilty of many sins of omission and commission in this class of cases, and these sins have been the result of poor pathology. Every case characterized by symptoms of inflammation in the right iliac region has been pronounced perityphlitis, when in reality many of them have been either an appendicitis or a peri-appendicitis. What would be good surgery in an appendicitis might not be good surgery in a perityphlitis. An early experience of my own comes forcibly to mind as bearing upon this subject. In 1876 a promi-

Digitized by Google

nent citizen of a neighboring village was suffering from an attack of what proved to be a rather mild case of perityphlitis, and the attending physicians called me in consultation, basing their call upon the fact that I was a comparatively recent graduate and must necessarily be an exponent of the most recent views upon this subject. My visit was made upon the fourth or fifth day of the disease and the usual hard tumor could easily be made out. Basing my opinion upon some recent articles that I had read advising early operation in every case, I advised operation, but my worthy confreres concluded that my views were entirely too recent for them and decided not to operate. The patient made a rapid recovery, and my opinion as a surgeon was at a discount in that village. My experience in this case taught me that it is not necessary or advisable to operate early in every case. This with my later experience has convinced me that it is not safe to lay down a general rule as to the time for operating upon cases usually grouped under the head of perityphlitis. I believe that early operation is seldom advisable in a true perityphlitis, because many cases recover without operation as in the one just cited, and because the disease is extra-peritoneal and when pus forms it has a very decided tendency to dissect up the peritoneum, passing forward within easy reach of the surgeon, and with very slight tendency to break through into the peritoneal cavity. I believe that the best time to operate is from the seventh to the tenth day, for by this time the danger of performing an unnecessary operation will have passed, and the pus will have dissected up the peritoneum with less danger of opening into the peritoneal cavity than the surgeon could have done it. It has been said that this operation being extra-peritoneal is free from danger and should be performed early rather than take the chances of waiting. I wish to repeat that the dangers of waiting have been greatly exaggerated. Those of you who have operated on the third or fourth day will bear me out in the assertion that it is not always an easy or a safe undertaking to dissect the peritoneum from the adjacent tissues at a time when all tissues are glued together and anatomical landmarks are obliterated by inflammatory deposits. The danger of an operation, therefore, is that an opening may be made into the peritoneal cavity resulting in a suppurating peritonitis. Dr. Hahn reported a case at the meeting of the Association of Surgeons at Berlin last year, in which he opened the peritoneum, and in spite of every antiseptic precaution a fatal peritonitis developed. Prof. Sonnenburg read a paper at Berlin advocating an incision down to the peritoneum, and in case pus was not found packing the wound with iodoform gauze and waiting until fluctuation appeared. This treatment was indorsed by a number of eminent men.

In a case reported by Gerster in which operation was refused by patient and friends, the abscess did not open into the peritoneal cavity until the nineteenth day.

In support of the position I have taken I wish to cite a very few typical cases from my own experience. Case 1. A woman aged fifty-five had had pain, swelling and tenderness in the right iliac region with a hard tumor gradually increasing, and on the eight day the local symptoms having made no improvement and the constitutional symptoms growing worse, I advised operation and called Dr. Abbott in consultation. No fluctuation could be made out, but upon introducing an aspirator needle to considerable depth we found pus. I then made a free incision evacuating a large quantity of very fetid pus. With free drainage and repeated washing the patient made a prompt recovery. Although an aspirator was used in this case I do not consider it good routine practice, because it is not absolutely free from danger, and when an operation is indicated it should be performed whether the surgeon can see the pus or not. The aspirator is an instrument that I have very little use for now in any case. The knife is a much better instrument.

Case 2. Was called by Dr. Chase to see a man aged about twenty-five who had been suffering from perityphlitis for nine days. On the morning of the ninth day the patient had had a severe rigor followed by a temperature of 105° upon which the doctor advised operation and called council. Although no fluctuation could be made out I made a free incision evacuating a large quantity of pus. A foreign body, evidently inspissated fæces, was removed. With drainage and irrigation the patient made a prompt recovery.

Case 3. Was called by Dr. Cates to see a young man about twenty-two who had been suffering for about a week (the exact number of days I have been unable to ascertain) from the ordinary symptoms of perityphlitis. Dr. French had seen the case in council earlier the same day and had expressed the opinion that it was a case which would soon demand operation. I unhesitatingly pronounced the case an operative one, but since it was already dark thought it safe to wait until morning. I was requested by Dr. Cates to meet Dr. French and himself early the next morning and to come prepared to operate. At the appointed hour we found that at four o'clock in the morning the patient had had a full movement of the bowels, and had been rapidly improving ever since. He made a good recovery.

This case certainly teaches that an operation may be performed unnecessarily if performed early. I believe this to have been a true case of perityphlitis due to impaction of fæces. All of the symptoms were well marked, so well marked that I had some misgivings as to the propriety of waiting until morning to operate.

There is a class of cases that was formerly classed under the general head of perityphlitis, that we now recognize as cases of appendicitis, and

Digitized by Google

while the majority of these when not ending in resolution end in a perityphlitic abscess, a certain minority result in a peri-appendicitis and peritonitis. It is from this minority that we get our cases demanding early operative procedure.

Unfortunately we are unable to draw a sharp line of distinction between cases clinically, and cannot say from the beginning in what tissue we have the inflammation. The symptoms of all the inflammations that occur in this region are very much alike, and in mild cases ending in resolution we may never be able to say exactly which one we have had. We should remember, however, that it is not safe to call them all perityphlitis and expect them to pursue the same course. *An early operation is indicated when ordinary symptoms are decidedly exaggerated or any evidence of general peritonitis develops*, for while a suppurative peritonitis is not a promising case for operation, such a case without operation is hopeless. Since we have learned that many cases of so-called perityphlitis are really cases of appendicitis, there is a decided tendency upon the part of the profession to call all cases appendicitis and to give them too much surgical importance. *Every case is medical at first and a large majority remain so throughout.* The following case is an illustration of the class of cases that should be operated upon early:

A young man aged nineteen began to suffer severe pain in the right iliac region. Bowels constipated, tumor not well marked. On the third day the temperature and pain were increased and the tenderness became more general. Drs. French and Ames were called in consultation. Operative measures were discussed but not practised that day. On the fifth day, however, I performed a laparotomy and found a suppurative peritonitis due to a perforating appendicitis. The abdominal cavity was washed out and the patient put in the best condition possible under the circumstances. He lived four days and expressed himself as having been greatly relieved by the operation. This operation was performed eight years ago when abdominal surgery had not reached that high state of perfection that it has now, and at a time when I knew very little about antiseptic surgery. At the present time I should operate as soon as urgent symptoms appeared, and with our present methods of after treatment am sure the patient's chances of recovery would be greatly enhanced.

The cases of so-called recurring perityphlitis familiar to almost every practitioner are undoubtedly cases of appendicitis. This class of cases has been the subject of many valuable papers and discussions of late, and inasmuch as the question of operative interference is still *sub judice* it behooves us to add our experience to that already published, that this subject may be the more quickly settled, for it is only by accumulated evidence that we can arrive at definite conclusions in this matter. It should be borne in mind when considering the advisability of an operation in these cases that an operation here means a laparotomy and not an extraperitoneal operation. At a meeting of the Practitioners Society of New York City in March of this year, the subject was very ably discussed by a number of eminent men. The census of opinion there seemed to be that no definite rule could as yet be established with reference to operation in these cases; that the mere fact of repeated attacks is not of itself sufficient cause for operation, but that operation is indicated by frequently repeated attacks, by the likelihood of the patient being out of reach of surgical aid at another attack, and by the severity of the attacks.

The testimony was that the operation is not as simple and free from danger as some recent writers would have us believe. The evidence went to show that most operative cases are first attacks, and that recurring cases are prone to recover without operation. Cases were reported where an operation had been performed for the removal of the appendix where no lesion whatever could be found. It was suggested that each attack with its accompanying inflammatory deposit is a safeguard against a suppurative peritonitis from a subsequent attack. My own experience upon this point is that my operative cases have been without exception first attacks, and that recurring cases have a decided tendency to be mild and to recover without operation. My experience in operating in this class of cases is confined to one case, in which I was consultant and assistant, Dr. W. E. Rochford, of Minneapolis, being the operator. The patient was a male, aged twenty, who had suffered from frequent and severe attacks, accompanied by constant and increasing obstruction of the bowels. His general health had failed. He was afraid to eat enough to keep up his strength for fear of another attack, and was unable to work. A decided enlargement could be made out in the right iliac region. It was I believe the unamimous opinion of those who saw him that an operation was not only justifiable but demanded. A semilunar incision was made over the most prominent point of the enlargement. The lower part of the ileum and the cæcum were found bound together by extensive adhesions, and the appendix buried in a mass of inflammatory deposit. The adhesions were broken up and the appendix with its surrounding mass removed.

The patient made a prompt recovery, and expressed himself, when I last saw him, as having been perfectly relieved. He had a good appetite, free movements of the bowels, and had gained over twenty pounds.

While I agree with Senn, of Milwaukee, and with Morton, of Philadelphia, that laparotomy for the removal of the appendix is as safe as a laparotomy can be when the appendix is free from adhesions, I cannot see that a laparotomy is necessary under such conditions, and I am sure that no laparotomy can be said to be free from danger. If any case

Digitized by Google

demands operation it must be one accompanied by adhesions, and the dangers of injuring a large artery or an intestine are certainly well worth considering. It behooves us to beware in this day of daring abdominal surgery that we do not place our patient in greater danger from operation than he is from disease.

While I believe we will soon have had sufficient experience to enable us to select certain cases of recurring appendicitis for operation, I cannot believe that the mere fact that a patient has had repeated attacks is an indication for a laparotomy.

To recapitulate:

I. We have several diseases classed under the common term perityphlitis, and while we cannot always separate them clinically, we should recognize their existence and not attempt to lay down general rules for treatment.

II. Cases in which the symptoms are not urgent but are gradually increasing should be operated upon from the seventh to the ninth day but not earlier.

III. In cases characterized by urgent symptoms such as we would expect from a spreading peritonitis, operation is indicated as soon as these urgent symptoms appear.

IV. The mere fact that a person has had repeated attacks is not sufficient indication for operative procedures, but very frequent or very severe attacks demand an operation.

SURGERY OF THE THYROID GLAND.

By Justus Ohage, M. D.

Fellow of the Surgical Society of Germany.

St. Paul.

Mr. Chairman and Fellows of the Society:

During an active practice of over ten years in the city of St. Paul, more than a hundred cases of goitre, in its different varieties, have come under my observation, and in only two of these have I been compelled to resort to excision as a last resort to save life. Most of the cases occurred in young women and were of the follicular-hyperplastic variety; a few were parenchymatous and colloid and only two or three of a malignant nature, with other complications which precluded any surgical interference. The great majority of the cases, as I said before, were in young women, and of the follicular-hyperplastic variety, and were mostly presented to me for treatment for cosmetic reasons. A few of the cases were mild types of Basedow's or Graves' disease, that is accompanied by more or less protrusion of the eyeballs and palpitation of the heart. Nearly all cases came from counties in Minnesota and Wisconsin adjacent to the St. Croix river, and all recovered under iodine and arsenic treatment constitutionally and locally administered. We must therefore consider goitre a rather frequent disease, yet admit that cases which actually threaten life are rare and that excision is very seldom necessary. This explains the small percentage of excisions which fell to my lot, and as far as I am able to learn no goitre extirpations have been performed in Minnesota besides these two.

Extirpation of the thyroid gland is one of the most formidable operations in surgery. No other operation demands so much coolness, surgical skill and anatomical knowledge of the operator as this. The hemorrhage is sometimes appalling; the immediate proximity of the large blood-vessels and nerves and the constant up and down motion of the field of operation by the respiratory movements of the patient are a constant cause of anxiety and everlasting watchfulness on the part of the operator. It is no wonder therefore that the operative treatment of goitre by excision was the "*noli me tangere*" of surgeons from the time of Galen and Albucasis up to the present day, and only during the last two decades has it been made an operation of recognized propriety by the successful cases of Billroth, Kocher, Socin, Wöffler and others.

The cases which are the most easy to manage are those of cystic goitre. The recognized and most successful procedure is that by tapping and injecting irritating substances such as tincture of iodine, perchloride of iron, etc. The way I generally do is as follows: The cyst is emptied of its contents by means of an ordinary large trocar, and after evacuating as much fluid as possible I inject about a drachm of the compound tincture of iodine. After a few minutes I allow all of the iodine to run out that can do so, withdraw the canula and close the opening with a small piece of plaster or iodoform-collodion. The reaction that sets in after this is best controlled by rest and the local application of ice, and pursues about the same course as in scrotal hydrocele.

Stoerch and Luecke made use of iodine injections into the substance or nodules of parenchymatous goitres with equally good results. Billroth, who has employed this treatment in a large number of cases, speaks very highly of it, and I myself have injected Lugol's solution quite frequently into goitres, also with satisfactory results. Yet this treatment is not without danger; sloughing, sepsis and iodism may follow it.

The short time allotted to me for this essay prevents me from going into the details of the other operative procedures such as the use of setons, caustics, evulsion, drainage, etc. Suffice it to say that besides constitutional treatment, tapping with subsequent injection as in hydrocele, parenchymatous injections and excision or resection are now the most successful and accepted methods in the treatment of the different kinds of goitre.

The first case of goitre that came under my observation which demanded excision was in September, 1884.

Digitized by Google

The patient was a German girl 9 years of age, and was brought from Woodbury, a neighboring village, to the St. Joseph's Hospital for treatment. I saw her right after her arrival about 9 o'clock at night and found her in a suffocating condition, bad pulse and the outer tissues of the neck swollen to such a degree as to completely efface all anatomical landmarks. The pharynx was covered by a greyish membrane, breathing was extremely laborious, and as a few other members of the same family had within a week previously died of diphtheria there could be no doubt in regard to the diagnosis in this case: diphtheritic laryngitis. But here was a grave complication. Goitre was hereditary in this unlucky family; the mother had a large cystic goitre herself, and the patient in question, she informed me, also had goitre. Undoubtedly the existing diphtheria had induced metastatic strumitis and extensive inflammatory œdema of all the soft parts lying at the sides and in front of the trachea, from the chin down to the jugulum. Intubation was not known then, so I had no other choice but either to get down to the trachea and open it, as best I could, or let the child die the slow death of strangulation.

The operation was done by lamplight, Drs. Dedolph and Schulin assisting. After making a longitudinal incision through the skin, large enough to give me ample room for manipulation, I began to resect the isthmus of the gland, doubly ligating each vessel as I went ahead.

The hemorrhage from the substance of the gland was so profuse that I thought best to get to the pedicle as expeditiously as possible and resect that part of the gland with the overlapping isthmus, thus getting sufficient room for opening the trachea and at the same time getting a clean wound cavity in which any hemorrhage could be controlled. I must confess that for the next half hour I did the most trying and difficult operation in my life, but finally succeeded and opened the trachea at a moment when life appeared to be extinct.

Nevertheless the child rallied, breathed easily through the canula and progressed nicely every day.

The wound was dressed twice a day with iodoform gauze and healed as kindly as could be expected. On the eighth day I removed the canula for the day, reinserting it for safety's sake for the night and left it out the following day altogether. The wound had nearly healed, œdema of the neck had disappeared, her appetite, digestion and general condition were good, when suddenly, ten days after the operation, she died of diphtheritic, cardiac paralysis. Extirpation of the inflamed thyroid gland was followed by recovery in this case, as in no way did the operation contribute to the unfortunate termination.

The second case came under my care June 20, 1889. The patient, Gertie Swanson, also a girl 12 years of age came from Pierre, Dakota. The goitre had appeared about 1½ years ago, was of the parenchymatous variety and had gradually encroached upon the trachea to such an extent that all internal medication having proved useless, she was sent to me for operation. While on the train to St. Paul the dyspnœa became so great that she had to stop over at DeSweet, Dakota, where tracheotomy was performed upon her successfully but with only temporary relief.

She arrived here at St. Joseph's Hospital on June 19 and I operated on the following morning, assisted by Drs. Nelson, Renz, Spencer and Denny. A long incision in the median line from chin to jugulum gave sufficient room, and as the trachea was compressed as flat as the sheath of a sword and bulging toward the right, I extirpated the isthmus and the left lobe entire. The tracheal rings were so compressed and softened that the least deviation of the head to one side or other caused kinking and consequently suffocation. For this reason I had to keep her head between two pieces of wood during the entire operation. I proceeded in a cautious way, ligating and dividing vessels as I went on, and succeeded in getting at the base of the growth which was situated behind the trachea and in front of the œsophagus, adherent to both. A double ligature was applied, the stump divided and seared over by a Paquelin cautery. Altogether about 50 ligatures were used, and as ligation preceded division of the vessels the hemorrhage was not large at all. The most difficult part to remove was that interposed between the trachea and œsophagus, yet during all the operation not one important vessel or nerve was accidentally injured; even the recurrent laryngeal remained intact. The trachea, of which about five rings lay exposed in the wound, was flattened and soft, and on this account the child had to be kept in a perfectly straight position for about a week, when the trachea had so far regained its usual shape and resistency that a deviation of the head to either side produced no more dyspnœa. The wound was dressed in the usual antiseptic way, sutured all through with the exception of the lower part where a catgut drain was left in, and had healed by first intention when the dressing was removed on the 8th day for the first time. Ten days after the operation the child had perfeetly recovered and left for home.

You will notice that in both operations a part of one lobe of the thyroid gland was left undisturded. This is of prominent importance, since we know that total extirpation is invariably followed by a condition which Ord designated "myxœdema," Kocher "kachexia strumipriva."

In regard to the physiological function of the thyroid gland there still remains much mystery, while at the same time the pathological conditions of the entire organism which the loss of the gland *in toto* augments, give to the physiologist many valuable points.

Digitized by Google

Tiedemann and Tresos (*Archiv f. klin. Chir.* 20, 31) have shown that the total extirpation of the thyroid gland in dogs, monkeys, etc., produces symptoms similar to those of kachexia strumipriva, whether the gland was healthy or diseased, while only partial removal or the existence of an accessory gland is an absolute protection against the breaking out of this disease. Hence total extirpation ought never to be done unless the malignant character of the degenerated gland, as in sarcoma or carcinoma, should imperatively demand it.

Kocher demonstrated in 1883 at the 12th Congress of the German Chirurgical Society, the consequences of total extirpation of the thyroid gland. The characteristic symptoms of myxœdema are more pronounced in young subjects and are always progressive.

Sometimes as early as 4 or 6 months after the operation the first signs appear. There is malaise, drawing pains and a sensation of stiffness and exhaustion in the extremities, chills, diminution of the mental faculties and a morose, apathetic state of mind. Soon œdema of the lower eyelids and the hands and feet appears, but the absence of albumen and casts and the non-pitting of the infiltrated skin excludes Bright's disease. The skin all over the body becomes infiltrated and dry, loses its elasticity and on the face gives the features a bloated, senile look; there is no mimic but an idiotic expression. As the disease progresses anæmia becomes very marked, and is due to a diminution in the number of the red and a relative increase of the white corpuscles of the blood. The cardiac sounds remain clear but the contractions become weaker and more frequent. The muscular tissues undergo pseudo-hypertrophic changes and the physical depression gradually increases. Cerebral changes produce headache, vertigo and tetanic and epileptic convulsions.

To cause all these symptoms, injury of the fibers of the sympatheticus and conveyance through the superior cervical ganglion to the recurrens was claimed by Baumgartner, while Kocher thought that softening of the trachea interfered with respiration and consequently prevented the proper oxidation of the blood, and that in this we would find the cause of the disease.

Schiff and Liebermeister advance a more plausible theory. They claim that the thyroid gland acting as regulator of the blood supply of the brain, the removal of this gland would produce deleterious changes in the cerebral circulation, and that to this were due all cerebral symptoms. We know that the thyroid gland acts as a safety-valve against hyperæmia of the brain. By venous stasis or excessive arterial pressure the blood does not return only through the internal jugular vein but also through the thyroidal veins into the gland, which acts as a collecting basin, and by pressing upon the carotid artery which is adherent to the capsule of the gland posteriorly it effectually prevents overloading of the brain with blood.

Horsley, Ord and Gull consider the thyroid gland a hæmatopoëtic organ, and in consequence of removal of the same there occur changes in the chemical composition of the blood. Horsley's experiments seem to show that the thyroid gland acts as a regulator of the tissue-metamorphosis, especially of the final products of the albuminates; that the absence of the gland aborts this function at the time of the decomposition of the mucinoid substances, and that to the presence of these all deleterious changes in the system are due.

At any rate it has sufficiently been proven that myxœdema is a disease in itself; that it always follows atrophy or total removal of the thyroid gland, and that therefore in extirpations of goitre the entire gland must not be removed, unless there are accessory glands or the disease which calls for excision is malignant in character itself. The propriety of excision in malignant disease of the thyroid gland is therefore doubtful.

59 Irvine Park, St. Paul.

SURGERY OF THE KIDNEY, WITH REPORTS OF CASES.

By C. A. Wheaton, M. D.

St. Paul.

Mr. Chairman and Gentlemen of the Surgical Section:

In scanning the literature of kidney surgery particularly with reference to nephrorrhaphy, it is calculated to make the younger members of the surgical profession stand aghast, when such men as Lawson Tait condemn it and state that it is not only unjustifiable, but useless, and when many others of equal prominence advocate removal of the kidney when the conditions are such as to warrant any attack on one of these capricious wanderers.

Fifteen years ago, Dr. McCosh tells us, a movable kidney was a surgical curiosity, and yet since the advent of Hahn's first case in 1881, the same writer has been able to tabulate 117 cases, four of them made by himself. A perusal of the recent writings on the subject will convince the casual observer, I think, that the operation "has come to stay," that it is not only justifiable but absolutely demanded in a certain small percentage of cases of this troublesome affection.

About a year and a half since Katie S., æt. 23, came under my care. She had been in the hands of many physicians, had been treated for dyspepsia, constipation, metritis, ovaritis, cellulitis cystitis and hysteria. She had escaped few of the tortures that could be inflicted in a medical way, and still was as miserable as when she began her mel-

Digitized by Google

ancholy pilgrimage. I regret to chronicle the fact that I contributed to her mutilated career first by castrating her. While I was aware that she had a movable kidney, I was convinced that her anomalous condition was due to disease of the uterine appendages. The left ovary was prolapsed, was large and tender and immovably fixed. I reasoned that the removal of this diseased organ would remove one decided source of irritation. My oöphrectomy demonstrated the necessity of the removal of both. The left ovary was undergoing cystic degeneration and the fimbriated extremity of the tube was firmly adherent low down in the pelvic cavity behind the uterus. The right tube was in a similar condition and its corresponding ovary was fibrous, adherent and little larger than a Lima bean.

While making this operation I was enabled to demonstrate to my entire satisfaction that the kidney was preternaturally movable, its superior border looked upward and inward, its hylum inward and downward, and when on her left side the organ gravitated toward the left so as to lie well in front of the spine. I could carry it upward beneath the liver, inward to the umbilicus and downward so that its concave border was near the posterior iliac crest.

It is an historical fact, I believe, that in many cases of movable kidney a group of symptoms have been encountered which were of a character to direct attention to the pelvic organs, and the real cause of these symptoms (a movable kidney) overlooked.

Some four or five months after the oöphrectomy, no benefit resulting from it, I suggested nephrorraphy. This operation was made in the ordinary manner, the patient lying on the left side with a firm support under that loin, thus flexing the trunk laterally as much as possible and thereby widening the costo-iliac space on the side to be operated upon. The incision extended from a little below the 12th rib parallel with and along the border of the erector spinæ muscle. On opening the transversalis fascia the cellular capsule of the kidney at once came into view. The kidney itself could not be exposed until an assistant had forced it back into the loin by pressure on the anterior abdominal wall. It was apparent that a considerable range of motion of the kidney existed within the capsule. On scratching through this fat envelope and holding the wound asunder, the inferior extremity of the displaced organ presented at the extreme upper limit of the wound; it was impossible by manipulation or pressure from in front to force it down even approximately to its normal position; with tenacula it was pulled down into position and so held by my assistant, while four, heavy, chromicgut sutures were passed through its fibrous capsule and cortex. These sutures were then made to traverse the fascial and muscular structure at the bottom of the wound, and when tied not only held the kidney apposed to the line of incision but also closed the bottom of the wound. A large drainage tube and the requisite number of interrupted wire sutures completed the treatment of the wound in the abdominal wall proper. The convalescence was without interruption and practically without fever.

This patient was so fat that the wound in the loin was rather more than five inches in depth and the space between the rib and ilium correspondingly limited, both conditions which embarrassed me considerably in placing my sutures. It is now more than a year since this operation was made, and the patient is still under observation. At a recent examination I was unable to find the kidney, and therefore assume that it has remained a fixture at the anchorage. I have been unable to form a satisfactory estimate of the value of my services in this case. She was a hysterical monstrosity when she first came into my hands and is little better in that respect now. Her general condition is improved and she assures me she has been bettered by the operation. She is a beneficiary of one of our local charitable societies which feeds and clothes her, and encourages her, I fear, in the belief that she is unable to work.

Case 2. Miss N., of Hudson, Wisconsin, was kindly referred to me by Dr. Johnson of that city. She had been under his observation since her early childhood; since puberty she had suffered paroxysmally with dyspepsia, irregularity of the bowels, dragging pain in the right side and back, usually much aggravated at the menstrual time. She had been treated for various little ills which were thought to be a part of her development; while she responded promptly to remedies given in time of illness, there was a something about her which medicine did not reach. As her age advanced she became thin and pale, and while not bedridden was considered a very delicate girl.

I saw her first about a year and a half ago, when I learned that medical treatment and supports of various kinds had been tried (without avail) to relieve the distress occasioned by a movable kidney. She had become so familiar with its eccentricities that she could, when standing, bring it well forward against the abdominal wall, and keep it there by a full inspiration and a voluntary fixation of the muscles in the lateral region of the belly. Palpation showed the characteristic kidney contour, and when she was lying down the hylum and renal vessels were easily made out. I advised nephrorrhaphy, which was finally consented to, and I made the operation a year ago this present month. The incision was identical with that in case 1, and the various steps of the operation the same except that the adipose capsule was firmly adherent to the kidney, and served as a medium of traction and enabled me to control the organ much more easily. I cut through the fat envelope, and with the finger separated it from the kidney front and back

Digitized by Google

with the view, as advised by Morris, of getting up sufficient inflammatory action to insure my fixation. Three chromic gut sutures were passed through the cortex and fibrous capsule and fixed at the bottom of the wound as in the first case. All redundant cellular tissue was pulled out and cut away.

An uninterrupted convalescence followed. Her general health was greatly improved and for several months the cure seemed complete, when one day she consulted the doctor and told him she could feel it again under her ribs. A careful examination showed that it had moved slightly but was not susceptible of change in position by manipulation. There is no question of the great benefit derived in this case, nor much of the probability of ultimate complete recovery.

Case 3. Miss T., æt. 23, teacher by occupation, was operated upon 10 days ago. She was referred to me by Dr. Thomas McDavitt, of Winona. For four or five years she has suffered more or less with symptoms referable to the right kidney, and for the past eight months has suffered intensely. The monthly congestion and tenderness have been specially troublesome and a peculiar feeling as of something moving in the affected side; the description was not unlike that of the fœtal movements *in utero*. Morris speaks of this peculiar motion as an occasional symptom; it has been so severe in this case as to threaten her reason. On two occasions since she has been under my observation nothing but the most elaborate and painstaking argument could convince her that she was not *inhabited*. Up to the present writing she has done well. There have been no annoying complications except a good deal of pain in the loin and hip. Of course several months must elapse before we can judge of the result.

The operation of nephrorrhaphy is still in its infancy. Hahn is reported to have introduced it in 1881. In the histories of published cases at my command there is a wide diversity of opinion as to the best material for sutures, and as to how these sutures shall be set to bring about the most effective fixation. McCosh, in his recently published article, gives the following four classes of operation:

"1. The adipose capsule opened or unopened is united by suture to the edges of the incision.

"2. After freely opening the adipose capsule the sutures are passed through the fibrous or true capsule of the kidney.

"3. After free exposure of the kidney, the sutures are passed directly through its parenchyma.

"4. A certain portion of the capsule proper is stripped off, the kidney and the sutures passing through its parenchyma bring the raw surface thus made directly intocontact with the cut tissues in the loin.

The sutures enter and emerge through the capsule just outside of the raw margin and are then passed through the tissues on each side of the incision, which is closely united."

Greig Smith lays some stress on that part of the operation which consists in separating freely the adipose from the fibrous capsule, with a view of securing a wider surface for adhesive inflammation. Anyone who has attempted to suture the kidney must have been impressed with the friability not only of the fibrous capsule but of the cortex. In none of my three cases could I depend very much on them. After the sutures were set and the assistant's supporting hand removed, if sufficient traction were made to bring the kidney into the wound they invariably began to tear out, and I was forced to depend largely on the abbreviation of the adipose capsule and its thorough suturing to the bottom of the wound.

For suture, chromic gut has been used perhaps more than any other one material, and it is still an open question whether silk, or silk-worm gut are not to be preferred. Newman has demonstrated that that portion of a cat-gut suture, which passes through the kidney substance softens rapidly and is much more quickly absorbed than those portions which are imbedded in the soft parts. Jacobson, while recommending silk, says: "Even when care has been taken with the preparation they may come away with vexatious repetitions through a long, persistent sinus." In an abdominal nephrectomy which I made several months ago I found it necessary to use heavy silk on the pedicle, and a persistent sinus remained for several months in the track of the drainage tube in the loin and did not heal until the silk ligature was removed. I have had this same experience with silk which I believed to be immaculate and where the wounds had healed without any inflammatory trouble whatever. I believe the sutures should be of some animal tissue, and if properly prepared that they can be relied upon, if reinforced by thorough suturing of the adipose covering.

It seems probable from all the testimony on the subject that one or many aseptic ligatures may be passed deeply through the kidney parenchyma without compromising its functional activity or its physical integrity. If this statement be true it will materially simplify the operation and afford a reasonable assurance of attaining the end aimed at, viz: the permanent anchoring of the organ.

As to whether the wound shall be closed or packed and allowed to heal by granulation is another question which has received a good deal of attention, more I think than it merits. There are few wounds made by the surgeon's knife where perfect drainage is so great a desideratum as those that are retro-peritoneal in the loin, therefore it seems to me that in the use of a large drainage tube for the requisite number of days we have it subserving the double purpose of conducting away the seepage and insuring a more slowly developing and fully as substantial deep cicatrix as can be ob-

Digitized by Google

tained by the open method and without many of its objections.

I have not gone into the subject of diagnosis, causation or pathology of movable kidney for the reason that the special works of Morris, Greig Smith, Newman, Bruce Clarke and others, as well as the modern text-books of surgery with which you are all familiar, consider these subjects exhaustively.

One word more in closing. When we consider that the mortality of nephrectomy for movable kidney is about 25 per cent. and that nephrorrhaphy when done as described here is almost without a death rate, is it not our duty to lift up our voices in protest against the former operation until every other method of treatment has demonstrated failure?

PATHOLOGY.

THOS. MCDAVITT, M. D., CHAIRMAN.

DESCRIPTION OF AN OPERATION ON THE SPINE FOR THE RELIEF OF PARAPLEGIA.

BY C. A. WHEATON, M. D.
St. Paul.

Gentlemen: Through the courtesy of our chairman I am permitted to submit for your consideration the record of the following sad but instructive case. I also submit for your inspection a segment of the spinal column and cord removed about six hours after death. I regret to say that the records of the case have been mislaid and I am obliged to review it from memory.

M. N., æt. 24, of Scandinavian birth, laborer by occupation, was referred to me a few months since by Dr. Johnson, of Hudson, Wis. He was a strongly built, athletic young man of good antecedent history. For some two or three years prior to my seeing him he had had occasional attacks of disability, not of any clearly defined character. He had run the gauntlet of antidyspeptic, antibillious and antirheumatic remedies, but never with any benefit. Dr. Johnson saw him first about two years ago and started him on the right track. He recognized a commencing disease of the bony spine and treated him accordingly; under the doctor's skillful management the patient recovered sufficiently to resume work and passed out of his hands. When he returned a few weeks since it was with a history of paroxysmal attacks of pain, and interference with locomotion of sufficient severity much of the time to incapacitate him for work. A decided prominence of the 8th dorsal spine was manifest and a complete motor paraplegia existed. Sensation was unimpaired and the integrity of the sphincters was preserved. Dr. Johnson applied a plaster jacket, after suspension, and with the effect of restoring motion almost completely in the left leg and partial motion in the right. This improvement proved to be of short duration, however, and after the lapse of two or three days the paraplegic condition was as profound as before.

I saw him for the first time about six weeks after the application of the jacket, and found him in the condition above described. While there was not apparently sufficient deformity to account for curvature pressure of the cord, it seemed probable that such pressure did exist, because of the immediate relief afforded by the plaster support. We reasoned that the cord was being pressed upon either by the irregularity in the bony canal or by inflammatory product, and that in a surgical attack only could we hope to afford relief. My friend Dr. Riggs saw him in consultation, and was able to locate a circumscribed zone of anæsthesia corresponding to the 10th dorsal nerve on the left side; this was of slight degree but demonstrable; he concurred in the proposed interference.

The patient was etherized and placed on his belly, and the spine and laminæ of the 8th dorsal, and also those of the two vertebræ above and two below removed. The cord and membranes were apparently healthy, and nothing anomalous could be detected except a decided bulging of the contents of the spinal canal, particularly in the centre of the field of operation, viz: directly beneath the point formerly occupied by the salient vertebral spine; it was now obvious that the pressure was entirely in front of the cord and of course beyond reach. The operation was completed about 1:30 P. M. He rallied well, and at 7:30 P. M. when I saw him seemed to be in a promising condition. Shortly after he went into profound collapse and died. I shall always believe the result might have been different had I given him an efficient spinal support in the form of a jacket. I had him comfortably bolstered up in bed, and intrusted to two reliable nurses, but I am convinced that some inadvertent change of position was the cause of the sudden, fatal collapse.

This unfortunate case is a most instructive one in all its bearings, clinically, surgically and pathologically. I have recited the clinical and surgical history as well as my memory will permit, and the specimen will speak for itself pathologically. You will see by its careful inspection that the fungous mass which lies between the off-coming motor roots was the direct cause of the pressure; had our patient survived, might not the recession of the cord from the pressure area (this recession being made possible by the removal of the bony roof of the canal) have given material relief at least for a considerable time?

Another query of greatest importance suggests itself: had we contented ourselves with expectant treatment and a proper spinal support, might not the cord have withstood the pressure of this fungus mass of granulation tissue until the retrograde changes which we would expect to follow an im-

Digitized by Google

proved physical condition had regenerated or anchylosed the diseased joint, and the subject have been spared the mutilation and the surgeon the responsibility for the result? I am aware that these questions cannot be answered except conjecturally, but they will at least set in motion a train of thought in your minds as they have in mine, and possibly prove a benefit to some other afflicted human being.

In closing I cannot do better than make a transcript of what Thorburn, in his recent valuable book, says of this class of cases, page 167, under the head "Indication for Operative Treatment:" "It is generally recognized that the nervous phenomena resulting from spinal caries are not due to the mere curvature of the spine; that the latter leaves the vertebral canal little if at all diminished in size, and that the implication of the cord arises from some other cause. It is equally certain that the lesion is not in most, if in any cases, an acute myelitis, but rather a result of pressure, to which the changes in the cord structure itself are secondary.

"This pressure may be exercised by solid fungating masses springing from the bodies of the vertebræ, or by acute, inflammatory swelling or hemorrhage in connection with the meninges, but by far most frequently it is the result of a chronic thickening of the latter. These three, although other causes may be at work, are much the most common in chronic, localized, pachymeningitis, compressing the implicated section of the cord. This conclusion is adopted by most writers upon this subject, and is in accordance with the writer's own experience of a considerable number of post mortem examinations."

ULCERATION OF VERMIFORM APPENDIX.

By J. C. Adams, M. D.

Lake City.

I present a specimen illustrating perforative appendicitis with the following history. I will premise that my connection with the case began with the post mortem: The patient, a boy æt. 13, died August 1, 1886, on the evening of the fifth day of illness. I was informed that he had been confined to the house only three days. The treatment had included the use of the faradic current, which rumor said was being used on the afternoon of the last day of life, and was suddenly suspended in consequence of a paroxysm of severe pain. On opening the abdomen on the third day after death a large volume of gas escaped. The parietal peritoneum was adherent to the omentum and the latter to the viscera by soft adhesions. The folds of small intestine in the vicinity of the cæcum were feebly agglutinated by a sparse, fibrinous exudation.

The appendix lay in a pool of pus. A small quantity of the latter had escaped into the peritoneal sac, through a rupture of the limiting exudation wall.

On examining the appendix two cicatrices were seen upon its mesenteric border indicating a former attack. These in the recent state were of a bright, rosy color. Opposite the mesenteric border there was an area of about one line square over which the middle fibrous coat had disappeared. There was also a thin spot with a slit just below, or at the apex end of the mesenteric border. At these points perforation occurred.

The obvious teaching of this specimen I take to be this: There is a class of cases of appendicitis in which recurrence does not tend to increasing safety, but the contrary, and this because fibrinous exudation is so sparse as not to form a limiting wall that can be effectual in protecting the abdominal sac from invasion. If in this class recurrences are so frequent as to seriously interfere with the occupation or pleasures of the subject, recent authorities agree that explorative laparotomy done in an interval between attacks, looking to excision of the appendix is warranted.

RECURRENT SARCOMA OF THE ORBIT.

By G. L. Gates, M. D.

Winona.

This tumor was removed May 15, 1890, from the orbit of a boy æt. 4 yrs. and 5 mo. It protruded one inch, was of a dark purple color, very hard and sensitive. It was firmly fixed in the orbit and could not be moved, even under an anæsthetic. Chloroform was administered with favorable results. On dividing the conjunctiva a troublesome hemorrhage ensued. The muscles and optic nerve were so tense that a distinct snap could be felt on their division. The only firm attachment was about the inner canthus. This was divided from the mass and dissected out later on account of the hemorrhage.

Several small pieces were removed afterward. One was firmly adherent to the skin, which was removed and two stitches taken. Every trace that could be seen was removed and absorbent cotton with a silk thread attached placed in the orbit to keep the lids in place. The child rallied from the anæsthetic in a few minutes after the operation, and seeing the eye lying upon the table, said, "There is my eye." He complained but very little of pain which was intense before the operation, and never mentioned it after a day or two.

The third day chloroform was again administered, the cotton removed, the orbit cleansed and thoroughly re-examined for any trace of the original tumor. None could be detected. The child was playful and around the house every day. It healed rapidly and without a bad symptom, and

Digitized by Google

on May 4, twenty days after the operation, he went home with instructions to return in ten days. Not a trace of the original tumor could be seen at that time. On returning at the appointed time a suspicious looking point appeared about the inner canthus. Ten days later fully developed its return and further surgical interference was not deemed advisable. It soon fell into the hands of a so-called "Christian Scientist" who promised great results. About June 1 I was informed it was still developing, since then have heard nothing from it.

DISEASES OF WOMEN.

J. W. ANDREWS, M. D., CHAIRMAN.

HISTORIES OF SIX PELVIC ABSCESSES IN WOMEN.

BY ARCHIBALD MCLAREN, M. D.

Adjunct Professor of Gynæcology, Minnesota State University.

St. Paul.

For the past three years the subject of pelvic abscess in women has been very thoroughly canvassed all over the medical world. Three years ago, nearly, all pelvic abscesses, excluding perityphlitic and psoas abscesses were supposed to arise from an inflammation of the cellular tissue of the pelvis, and the pathological picture of the plaster of Paris exudate, which either slowly absorbed or softened and broke down into pus, is familiar to us all. Only two years ago, many of the most prominent gynæcologists of the country supported this theory, as is shown by the reports of the proceedings of the American Gynæcological Society of 1888, when Dr. Sutton, of Pittsburgh, read a paper on pelvic abscess before that body. In this paper he confined his remarks entirely to extra-peritoneal abscesses, and gives the impression that he considers by far the greater majority of all such abscesses, both acute and chronic, as cellular in character. In the discussion of this paper, Dr. Goodell, of Philadelphia, said that he had never seen a true pelvic abscess arising from the tubes or ovaries, although he had seen ovaries and tubes containing pus. Dr. Thomas, of New York, recognized three varieties of pelvic abscess.

First: Where the abscess was confined in the broad ligament..

Second: Where the abscess lay between the vagina and the peritoneum, behind the uterus.

Third: In the areolar tissue, between the bladder and the uterus. He also adds "another variety might be due to pyosalpinx and was often unsuspected."

Dr. Gill Wylie, of New York, considered that nine out of ten of all pelvic abscesses were due to either salpingitis or ovaritis. Dr. Polk, of New York, considered that almost all pelvic abscesses were tubal, and therefore called for laparotomy. Dr. Johnston said that every specimen of pelvic abscess which he had ever examined was due to inflammatory disease of the ovary or tubes. Dr. Baldy, of Philadelphia, said, excluding hæmatocele, all chronic pelvic abscesses originated in either the tube or the ovary, and he therefore favored laparotomy, as opposed to vaginal incision, in the treatment and cure of pelvic abscesses.

Since this meeting, in 1888, those men who then supported the theory of extra-peritoneal abscess, as opposed to ovarian and tubal abscesses, have very materially changed their views, as shown by their papers and remarks reported in the different society reports. In fact, the whole medical profession, with characteristic progressiveness, has, in great part, discarded the old pathology of pelvic abscesses, and has either come or is coming to the view that almost all pelvic inflammatory troubles arise from inflammations of either the tube or ovary.

My observation and study of the literature of this subject has led me to believe that although we occasionally do have purulent accumulations in the pelvic connective tissue, corresponding to the old descriptions of suppurative pelvic cellulitis, that these abscesses are very rare, and that such inflammations are always accompanied with a certain amount of peritonitis, and that the peritonitis is probably the most important element in every such case. I have also been forced to believe that by far the greatest number of all pelvic inflammations arise from the passage of a septic poison direct to the peritoneal cavity through the uterus and the Fallopian tube, producing either general or local peritonitis, abscess of the tube, abscess of the ovary, of the tube and ovary combined, or encysted peritoneal abscess. When the abscess is so produced it may remain in a quiescent state for a long time, a constant menace to the patient, or it may work its way to the surface, through the abdominal wall, it may rupture into one of the neighboring hollow viscera, or, more rarely, it may rupture into the peritoneal cavity.

Simply because a woman has had a pelvic abscess located at the side of the uterus, which has broken either into the vagina or the rectum, and after discharging a certain length of time has disappeared, is no proof that the centre and cause of the trouble has not been a tubal or an ovarian abscess; for such an abscess may ulcerate through the posterior layer of the broad ligament, and so open into the cellular tissue, sending finger-like sinuses out in any direction. My experience of the past has convinced me that this is the pathology of by far the greater number of all pelvic abscesses, especially of all chronic pelvic abscesses. Such a pathology also explains why a certain number of pelvic abscesses, treated either by vaginal section and drainage, or even by through drainage, have

Digitized by Google

not been cured, but have continued to discharge year after year. For if a diseased ovary, or a tube, be the centre of the trouble the discharge will not stop until the cause be removed.

In support of this position I wish to report the history of a few cases that have proven very instructive as well as interesting to me in the study of this subject; for it is only by the accurate study of clinical cases and of pathological specimens that the truth or falsity of such a theory can be determined.

Case No. 1. Mrs. R., æt. 47; this patient had suffered for years from a chronic pelvtc abscess, following a miscarriage. Two years ago I reported this case in a paper read before the Minnesota Academy of Medicine, as one cured by through drainage; several months after all discharge had ceased Dr. Markoe, her physician, told me that the abscess, which had apparently been cured, had again commenced discharging. In this case the abscess cavity was about the size of a large orange, lying close up beside and behind the uterus on the right side. I made an incision parallel to Poupart's ligament and dissected the peritoneum away from the pelvic wall, opening into the cavity from above without apparently going through the peritoneal cavity. Although this abscess opened into the broad ligament, its cavity was on a level with the upper border of the ligament and well back in the pelvis. A long drainage tube was passed through into the vagina, and was kept in place for several weeks; it was then slowly drawn out through the vagina, the sinus being allowed to close up after the tube. The abscess cavity was carefully washed out with an antiseptic solution until the fistula closed, but, as I have stated, only to open up again at a later day, the discharge continuing up to the present time. Although in this case I have not seen the diseased Fallopian tube, still, with the knowledge of to-day I feel very sure that the cause of this patient's trouble is a tubal abscess and that she will never be cured until the tube is removed.

Case No. 2. Mrs. W., æt. 33; one year and a half ago Mrs. W. had a miscarriage, followed by puerperal septicæmia; since that time Mrs. W. has had some eight attacks of inflammation of the bowels, the last one being particularly severe, confining her to bed for nearly a month, her life being despaired of during part of that time. She was first seen December 1, 1889; an examination showed the uterus slightly enlarged, fixed in the pelvis with the characteristic plaster of Paris exudation, fixing the entire roof of the pelvis; a very tender mass on the right side, about the size of a man's fist, and a mass on the left side about half as large. December 7, 1889, laparotomy was performed, and although it was necessary to exert considerable force in tearing the adhesions which bound the diseased ovaries and tubes to the surrounding peritoneal surfaces, that I might be able to lift these masses from their beds, the patient recovered without a bad symptom or a rise in temperature. The mass on the right side was found to be a tubal abscess, the tube and ovary being so intimately united that it was impossible to separate them. The abscess cavity, which lay in the ampulla of the tube, contained about two teaspoonfuls of thick pus; the left tube also contained pus, but in a much smaller quantity.

Case No. 3. Mrs. S. has had a chronic puerperal pelvic abscess for the past eight years; she is very much of an invalid and confined to her bed a great deal of the time. She is constantly annoyed by the discharge from an old sinus, which opens just above Poupart's ligament on the left side. I assisted at the operation which her physician performed for the radical cure of this abscess. A block tin sound was passed down through the sinus into the abscess cavity, and then the sound was pushed through into the vagina and a long rubber drainage tube was pulled down through the abscess cavity, through the vagina, and out at the vulva. The operation was soon followed by peritonitis; she also had several large hemorrhages from the sinus which proved fatal in a few days. At the autopsy, the abscess was found to be ovarian in origin. An opening was discovered connecting the cavity of the abscess with the colon about the sigmoid flexion. In passing the sound through the abscess cavity it was made to pass into the colon, then out of the colon about an inch and a half below the abscess opening and into the fundus of the vagina; so that the drainage tube, in its passage through the anterior abdominal wall to the vulva, passed down the old sinus into the abscess cavity through a knuckle of the anterior wall of the colon then into the vagina at the point corresponding to Douglas' cul de sac. Here was an abscess of long standing that had passed through the hands of several very good men, and had always been diagnosed as a chronic suppurative cellulitis.

Case No. 4. Mrs. R., æt. 35, first seen on February 14 of this year. The patient has had two miscarriages; the first one five years ago; the second, in August last, was followed by a sharp attack of peritonitis; has never been well since that time, the patient being confined to her bed most of the time and entirely unable to support herself. Examination showed a large, tender mass lying beside the uterus, on the right side, and the entire roof of the pelvis was very dense and hard. Her most distressing symptom was vesical tenesmus. On the 15th of February laparotomy was performed, and a mass the size of a man's hand was found lying behind the uterus. With great difficulty this mass was separated from the surrounding soft parts, adhesions being very dense. The mass was raised into the abdominal wound, ligated and cut off. Upon cutting the mass it was found to be a tubal abscess, containing about four ounces of very fetid pus. The patient recovered without

Digitized by Google

a bad symptom and left the hospital on the thirty-third day after the operation.

Case No. 5. Mrs. W., æt. 42; this patient was first seen in January of 1889, when I took care of her with a severe pelvic inflammation; at that time I feared the formation of pelvic abscess. A large inflammatory mass formed beside the uterus on the right side, fixing the uterus in the pelvis. In a few weeks time the inflammatory deposit partially absorbed, the mass lessened very much in size, the uterus became quite movable and the patient's temperature and pulse became normal; I then felt that the danger of pelvic abscess was past. Up to March 15, 1890, the time when I performed laparotomy, I saw this patient a number of times, when she would suffer from uræmic attacks. Without any appreciable cause, unless perhaps exposure to cold, this woman would have suppression of urine so that in twenty-four hours she would pass less than six ounces. Such a condition would last two or three days and then slowly disappear; her symptoms would abate, she would have almost no rise in temperature, no pus, albumen or casts in the urine, but these attacks were always accompanied with an increase of pelvic tenderness and pain, most severe on the right side of the uterus. In the latter part of last winter the attacks became more numerous and the suppression of urine would continue for a longer space of time. Fearing that the pelvic trouble would lead to serious mechanical kidney trouble, I performed a laparotomy on the 15th of March last, no albumen or casts having been present at any time. At the time of the operation the right ovary was found to be twice its natural size, fixed in the pelvis; a pyosalpinx in the right side was found, the abscess lying in the ampulla of the tube, the bottom of the abscess cavity being the bottom of Douglas' cul de sac; the abscess contained about half an ounce of very fetid pus, and was broken while trying to raise the tube into the abdominal wound; the left tube was also enlarged and contained about a teaspoonful of pus. A small par-ovarian or intra-ligamentous cyst was found on the right side. In enucleating this cyst from the broad ligament, the posterior layer of the broad ligament was badly torn, so that it became necessary to ligate the bleeding vessels; large quantities of hot water were used to irrigate the abdominal cavity, but the woman died thirty-six hours after the operation from acute septic peritonitis.

This is the only case of abdominal section I have lost during the last year and a half, and I consider the fault to be the attempting to enucleate the par-ovarian cyst from the broad ligament. The rupturing of the abscess into the peritoneum I do not consider to be so very dangerous under ordinary circumstances, but when it is necessary to leave a large raw surface, combined with the rupture of an abscess into the abdominal cavity, it makes the case an extremely dangerous one.

Case No. 6. The last case is Miss X., æt. 21, who suffered from pelvic trouble for two years. About ten days before the case was first seen her physician reported that a large quantity of pus had passed from the bowel, and that the abdominal distension had immediately decreased. Examination showed a large mass lying behind the uterus and well over upon the right side. I assisted at the performance of this operation, and after making an abdominal section it was found impossible to drain this abscess through the vagina on account of the relationship of the bladder to the abscess cavity. The mass proved to be a lax, thin-walled ovarian sac, about the size of a fœtal head. With considerable difficulty the adhesions were separated, the tumor ligated and cut off. Upon examination the specimen was found to be an ovarian abscess connecting with the cavity of a large inflamed Fallopian tube. This case had been seen by several of our best men whose diagnosis had been suppurating pelvic cellulitis. If the pathology here advanced be correct and if the majority of pelvic abscesses are intra-peritoneal, we should keep constantly in mind how easily we may injure an important abdominal viscus by blindly puncturing or cutting into an abscess cavity from the vagina. Many such accidents as you know have been reported.

In closing my paper I can only repeat the remark which I remember the pathologist, Dr. Jas. Welch, now of Johns Hopkins University, making some six or seven years ago: that although he had performed a great many autopsies on patients dying in the Woman's Hospital of New York, where the diagnosis before death had been pelvic cellulitis, he had yet to see a patient suffering with what he considered as uncomplicated or chronic pelvic cellular inflammation.

GALVANISM IN THE TREATMENT OF UTERINE FIBROIDS, WITH REPORT OF A CASE.

By S. W. Ransom, M. D.

Dodge Center.

The use of galvanism in the treatment of uterine fibroids is to-day attracting the attention of surgeons and gynæcologists throughout the civilized world, and the question is being asked: Is the surgeon justified in performing ovariotomy and hysterectomy for the cure of uncomplicated fibroma without first resorting to galvanism? To the application of Apostoli's method of galvanism to a case of mine, I wish to call your attention at this time.

Mrs. J. M. C., aged 37, American, mother of one child, now 19 years of age, came to my office in the early part of March, 1889. She complained of dragging pain in the region of the pelvis, menorrhagia lasting two weeks, part of the time, when much on her feet, very severe. She was anæmic, languid and weak, though still about and attending

Digitized by Google

to her household duties. On examination I found the uterus enlarged, filling the entire pelvis and reaching upwards in the abdominal cavity to near the umbilicus, the cervix being drawn upwards and to the left. With great difficulty I succeeded in rotating the uterus and bringing the cervix within reach, and introduced a sound to the depth of five inches, but did not reach the fundus, the tortuous character of the canal preventing without the use of undue force.

The uterus was globular, dense and firm to the feel. The tumor appeared to occupy the left lateral and superior portions of the uterus.

The history of the case extended over a period of two years, but for the last few months its growth had been very rapid and all the symptoms greatly intensified. I made a diagnosis of intramural fibroma, explained to her the nature of the tumor and methods of treatment, but advised her to consult a physician of larger experience than myself before commencing treatment. Accordingly I gave her a letter of introduction to the Doctors Mayo, of Rochester, who confirmed my diagnosis, and in a letter to me advised immediate extirpation of her ovaries to bring on the menopause. I discussed the matter of treatment with her and her husband from various standpoints, and it was finally decided to try other remedies before resorting to surgical ones. On March 28, she began to take fluid extract of ergot in 20 drop doses four times a day, and slowly increased the dose to one teaspoonful. There was relief from pelvic pain and hemorrhage, and for a time the tumor ceased to grow. After a dormant period of two months, the tumor took on increased activity. The dose of ergot was now increased to 80 drops which brought on violent uterine contractions. The ergot was discontinued, but the tumor continued to grow without being influenced by the severe contractions induced by the ergot. Treatment was again discussed; should she submit to immediate operation, or should she try galvanism? Her condition was peculiarly trying. Her husband was an invalid in the last stage of diabetes mellitus. Not only was he unable to lighten her burdens, but he required much attention from her. They were poor and hard pressed for the necessaries of life. Her husband and son would not consent to surgical interference with its possible fatal results, and she wished to postpone it as long as possible. If we decided to use galvanism, other difficulties presented themselves. I had no galvanic battery, nor had I experience in the use of one; nor was there a physician within reach who possessed a battery of sufficient power to attack a fibroid. They had no means to defray the expense of treatment by an expert electrician, and she could scarcely have been spared from home for the time required. Nor could I afford to purchase an expensive outfit to treat a charity case.

During these months I had been eagerly watching the medical press to see what others had accomplished with this agent, and their reports were mostly encouraging. About this time I read an article, "How to Make a Cheap Galvanic Battery." It was so simple of construction that I immediately set to work to make one. The cells, fifty in number, consisted of one-half pint salt-mouthed bottles; the carbons of the ordinary electric light carbons cut in two; the zincs I cast, first having made moulds in plaster of Paris. They were about the same size as the carbons. A zinc and a carbon were placed in each cell, insulated by a piece of rubber. The zinc of one cell was securely connected by a copper wire with the carbon of the next, and so on through the fifty cells. The zinc end constituted the positive, the carbon end the negative pole of the battery. The cells were filled three-fourths full of a saturated solution of bichromate of potash and muriate of ammonia in soft water, placed in a tight box of convenient size, the wires insulated where they passed out, and the battery was complete and charged ready for use. I also made a water rheostat and nearly all my electrodes. The construction of this battery took my spare hours for several weeks, but finally on Aug. 28 I began its use. The abdominal or dispersing electrode consisted of a plate of heavy tin, five by eight inches, with holes punched in it an inch apart, covered with chamois skin, bent to fit the abdomen, moistened with warm water and pressed evenly and firmly down. A cup-shaped electrode, about one and one-fourth inches in diameter was pressed against the most dependent, vaginal portion of the uterus, the negative being used as the active or uterine pole. The electricity was let carefully on, increased to the point of toleration and continued seven to ten minutes. Two treatments were given each week in the interval of her monthly sickness, but as that continued more than one-half the time, I was unable to give more than three or four treatments each month. Several times I gave a treatment during severe hemorrhage. This plan was continued much as detailed above up to Nov. 15, except that as she became more tolerant of electricity, the strength of the current was increased and the seances lengthened to one-half to three-fourths of an hour. Thrice during this period I drew down the cervix and introduced a probe-shaped electrode into the womb and give intra-uterine electrolysis, but the manipulation necessary to bring the os within reach was so painful that I was forced to desist. Up to this time our electrical treatment had only succeeded in holding the tumor in check. It had not decreased in size, nor had any of its unavoidable symptoms materially abated.

On Nov. 15 I began negative galvano-puncture of the uterus through a speculum. The needle was introduced from one-half to one inch into the exposed vaginal portion of the uterus. The seances continued twenty to forty-five minutes. The strength of the current was increased each time to

Digitized by Google

the point of toleration. From Nov. 15 to Dec. 30 she received six treatments; from Feb. 18 to March 11 four, in all ten treatments by this method. Six consecutive weeks in mid-winter she had no treatments on account of illness from influenza. On March 19 her husband died and treatment was indefinitely postponed.

Immediately after beginning electro-puncture, there was a notable improvement in her condition. The tumor decreased in size, hemorrhage and pain were less and the strength began to return. Nor was this improvement confined to the few weeks in which she took treatment, but continued during the interval when she took none.

On May 8 she called at my office and stated that her monthly sickness lasted now but six days. She had been steadily improving in strength, while the tumor had been slowly decreasing in size. On examination I found the uterus movable in the pelvis, the cervix easily rotated, though still drawn to the left, and the tumor extending into the abdomen about two inches above the pubic bone. Pain had mostly subsided, though there was still an uneasy feeling when she worked unusually hard. She expressed the wish to continue treatment for the purpose of still further decreasing the size of the tumor and to avoid possible relapse. I introduced an electrode into the womb and gave a treatment lasting forty minutes. She rode home, three miles in a lumber wagon, commenced immediately to make garden, clean house and otherwise act imprudently, with the result of inducing a severe metritis and slight peritonitis which it required active treatment to control. Since then I have given no treatments. At the present time the tumor is about one-third the size it was at the worst and about one-half it was when first examined. All tenderness from the metritis has subsided and her last monthly sickness continued but five days.

The physician who would practise electrolysis of uterine fibroids must give careful attention to details. The abdominal, or dispersing electrode must be large, moistened with warm water and evenly applied. It must not press unduly on the pubic or iliac bones, and if there is a wart, excrescence or abrasion of the skin, it must be insulated; otherwise it will become the centre of an intense current. The patient's clothing must be protected from dampness by covering the moist electrode with a warm, dry towel. The patient should have a warm, vaginal douch, before coming to the office. The table, or gynæcological chair must not be jarred. All slamming of doors, heavy walking or moving of attachments of battery must be avoided during the passage of the electrical current. The active or uterine electrode must be insulated up to the point of insertion. The electrodes must be adjusted and all appliances arranged before the circuit is established. The electrical current must be let carefully on, increased and continued at the point of toleration. The physician should watch his patient carefully during the treatment and be ready to terminate it when required. The current should not be broken abruptly, but the resistance in the rheostat increased until electricity ceases to pass; then the electrodes removed. A piece of absorbent cotton moistened with bichloride of mercury, 1 to 2,000, and dusted with iodoform, should be placed against the puncture or cervix, and let remain 24 hours. She should remain quietly lying down one to two hours. Better still if she could remain in bed twenty-four hours.

By the use of galvanism, electrolysis or decomposition of the fibroid takes place, hydrogen and alkalis going to the negative, oxygen and acids to the positive pole. When we make electro-puncture or when we insert a small electrode into the womb, electrolysis takes place more rapidly than when we use an electrode of larger size simply pressed against the cervix or vaginal portion of the uterus. After efficient electrolysis there is usually a discharge of serum from the puncture or os, constituting what might be termed drainage. Absorption takes place and continues for days sometimes months after treatment has been discontinued. Contraction of the arterioles and arteries with emboli of some of their trunks shuts off the blood supply and controls the circulation. Atrophy follows, the tumor that remains causes little if any inconvenience, and the patient may be said to be symptomatically cured.

I have been prompted to report this case in the hope that it may be a small factor in assisting our profession in placing a proper estimate upon electricity in this disease. That my friends, the Doctors Mayo, voiced the opinion of the ablest men of our profession at that time, in recommending oöphorectomy in this case I have had abundant opportunity to know. In December last I described this case to a surgeon of national reputation, and his opinion was that I might be able to retard the growth of the tumor for a time with electricity, but ultimately extirpation of the ovaries would have to be performed.

I do not have at my disposal, nor do I know that there exist reliable statistics bearing on the mortality of recent hysterectomies for the cure of fibroids, but when we consider the exsanguinated and emaciated condition of the patient, the size of the tumor and the nature of the operation, in spite of the most improved methods, perfect asepsis and marvelous skill and dexterity of the operator, the mortality must be considerable. Nor do I have mortality statistics of recent oöphorectomies for the cure of fibroids (a short time ago the mortality was ten per cent.); but considering the fact that the ovaries are frequently displaced, buried and wedged in by overlapping fibroids and uterus, we can understand some of the difficulties attending their removal, and the danger is proportioned to the difficulty. Add to this the uncertainty of the result, many oöphorectomies failing to relieve either pain, hemorrhage or the growth of the tumor, through collateral cir-

Digitized by Google

ume. Troublesome cough, headache, some nausea. Gave antifebrin, washed out uterus and vagina with 1-5000 solution bichloride of mercury. Poultice over uterus, quinine in full doses.

Next day found temperature 102°, pulse 90, uterus considerably swollen and very tender on pressure. Pain controlled by morphine hypodermically. About this time I found that both lower extremities were full of varicose veins, and at every point where the vein was ruptured there was local inflammation, redness and pain, but no true phlebitis or phlegmasia dolens at any time. Careful bandaging gave great relief.

It took full doses of quinine (20 grs.) to control the fever; antifebrin I considered too depressing as it produced excessive diaphoresis, yet the pulse was always strong and not over 100, a singular state of things in metritis. Appetite fairly good and but very little vomiting. On the third and fourth days but little morphine was used, as the swollen uterus was growing smaller and less tender. Discontinued the uterine injections on the fifth day as there was no fetor to the washings and but little discoloration though at first both had been well marked. She could lie comfortably in any position in bed and thought herself doing splendidly, in which opinion I fully agreed.

About this time she began to complain of pain in the arms. This grew worse and worse, greatly increased on the least movement, not confined to any one place but through the whole arm. We soon noticed hallucinations. Temperature rose rapidly. Delirium increased, taking a pleasant turn; she thought herself well and wondered at our anxiety. Gradually fell into collapse and died on the tenth day after confinement and the sixth after I first saw her.

What caused her death, metritis, septicæmia, la grippe or what? If either metritis or septicæmia the usual symptoms were not marked. If la grippe, there also the usual sequelæ were wanting. There were no signs of heart failure or the usual nervous phenomena.

There is one other factor in the case worthy of attention. About the time my patient died her neighbor close by was confined and attended by the same midwife, and on the third day came down with metritis with the usual symptoms, and as far as the metritis was concerned ran the same course as the other case, but ended in recovery. This case was not complicated. I now remembered that exactly five weeks before I had been called to see this midwife's husband and found a horrible state of affairs. The old man was paralyzed and demented, the urine dribbling away and the back one mass of putrid, decaying flesh. He had not been changed for weeks, and the stench was dreadful. He died soon after.

There was no one but his wife, an old and filthy hag of a woman to attend him. And this woman was the neighborhood midwife. Undoubtedly this woman communicated the poison through her hands or clothing to these two women.

And yet I am in doubt as to the real cause of death in the first case, but believe there were at least three factors, the least of which was not that as yet little understood epidemic disease commonly called la grippe.

A CASE OF DORSAL DISPLACEMENT OF THE ARM.

By W. A. Hunt, M. D.

Northfield.

Of several difficult and troublesome cases of labor during the past year, I had but one that might be called unusual or worthy of being placed on record. A well developed multipara (5th) had been in labor under the care of a midwife for 36 hours when I received my call to attend her. The membranes had ruptured about 24 hours previous to my visit, and the pains had been long and severe but ineffectual. On examination I found the head presenting normally but remaining high up in the pelvis and no progress made by the uterine contractions, but could discover no reason for the delayed labor either in the child or mother. As the patient was completely prostrated by the prolonged and inefficient contractions which were now weaker and spasmodic in character, and as the liquor amnii had largely escaped, the forceps were resorted to.

After anæsthesia with chloroform, another examination was made, but I was unable to get my hand high enough above the vertex to find any cause for its failure to descend. The forceps were applied with no great difficulty and by their aid a ten pound boy was delivered, and as his head and shoulders emerged from the vulva the cause of the dystocia was made evident in the displacement of the right arm, which was thrown across the back of the child's neck. This undoubtedly caught on the brim of the pelvis, preventing the further descent of the shoulders.

A CASE OF DOUBLE UTERUS AND VAGINA WITH PREGNANCY.

By L. P. Dodge. M. D.

Farmington.

Mrs. B. Aged 37. White. Well developed. First became pregnant after eighteen years of married life.

The peculiar features of the case are the duplex condition of the female organs.

The external organs were well developed. There were two vaginas with a perfectly developed septum, the left being larger than the right. The

Digitized by Google

septum was antero-posterior, extending from the vulva cleft to the uterus. The finger introduced into the right vagina, the septum perfectly closed the left vagina and *vice versa*. There were also two well developed cervices and ores and two uterterine cavities with a perfect septum as in the vagina.

Conception took place in the left uterine cavity. The period of gestation was normal in every respect, except that menstruation occurred every four weeks from the right uterine cavity which enlarged as gestation progressed. At the end of the fourth, fifth and sixth months the flow was excessive, demanding treatment; at the end of the seventh and eighth months it was not so profuse. It also appeared at the ninth month two days previous to labor. Labor was normal, the left os dilating. The presentation was left occipito-anterior; duration of labor twenty-eight hours. The septum vaginæ remained intact and the right os did not dilate as it is said to by some authors, nor was there the broadness of the person in this case which authors mention in most cases.

The early history of this case was reported to this Society and published in its "Transactions" for the year 1877, page 108, under the head of "Uterus Didelphys Septus et Vagina Septa," but as the septum ran through up to the fundus uteri and the uterus was not bicornis, its more proper classification is "Uterus Septus Duplex et Vagina."

ORTHOPÆDIC SURGERY.

ARTHUR J. GILLETTE, M. D., CHAIRMAN.

CHAIRMAN'S ADDRESS.

A CASE OF TENOTOMY FOR RELIEF OF DEFORMITY IN SPASTIC PARALYSIS.

During the past year Elsie R., eleven and a half years of age, was brought to my office by her parents in quest of relief for their little girl suffering with a badly deformed leg and arm.

The deformity was that the right fore-arm was flexed upon the arm. Whenever excited the muscles of the arm became rigid, as did the fingers of the hand of the same arm.

The right foot was in the position of talipes equinus, and when she attempted to walk and weight was thrown on the foot it was brought into the position of talipes equino-varus. (See Fig. 1).

The toes whenever irritated or the foot moved or the child in any way excited were immediately drawn into the position of hammer-toes, to such a degree that the mother at times was unable to put on the child's shoe or stocking. The spasm, however, of fingers and toes entirely disappeared when the child was asleep, but the talipes equinus remained the same, leading one to believe that there was a real structural change in the calf muscles, due to the long continued, abnormal position and the usual changes, occurring from paralysis.

At one time this child was treated with a club-foot shoe. She wore this brace until sores formed to such an extent that she could no longer endure the pain.

An aunt on the mother's side suffers from epilepsy; no other evidence of nervous trouble has been found in the family of either parent.

Elsie's health was perfect until her second year. In the second month of her third year she com-

FIG. 1.

plained of pain in her head, which was shortly followed by vomiting. Two days after this she had a convulsion, quickly succeeded by others, for the space of twenty-four hours. During this period she was in a semi-conscious condition. After the cessation of the convulsions she became totally unconscious, remaining so for six or eight weeks. She then gradually came to herself, and for three weeks after her return to consciousness she was unable to talk. When she began to speak she did so with great effort.

The right side, including the face, was paralyzed from the very first.

Digitized by Google

At the time of the seizure the pupil of the right eye was greatly dilated and did not react to light; the left arm participated in the convulsive movements, but not the left leg.

After the expiration of a year she became able to walk, her gait being similar to the hemiplegic walk of an adult.

Wishing to know her exact nervous condition, I sent her to Dr. C. Eugene Riggs, whose information will be found in the following letter:

"My Dear Dr. Gillette:

"I have just examined with great interest your little patient, whom you have so courteously referred to me for my opinion. She presents a perfect clinical picture of cerebral infantile palsy of

FIG. 2.

the hemiplegic variety. There is marked mental impairment, though not so marked as that usually found in the paraplegic and diaplegic types of this disease. The child has shown decided athetosis with choreiform movements. There is pronounced contraction of the flexor muscles of the hand, and the fore-arm is semi-flexed on the arm.

"Talipes equino-varus exists to an intense degree, practically unfitting the child for walking. The contracture of the calf muscles I believe to have passed the stage of spasm and to be due to a real change in the muscular tissue. The muscles of the arm and the leg present the normal muscular formula.

"It is a worthy of note that the trophic disturbances in the leg are as extreme as those that are found in myelitis of the anterior cornua.

"Very truly yours,

"C. Eugene Riggs."

I instructed the parents that a brace would be of no use, and that possibly by dividing the tendo Achillis and other tendons that might from their contraction hold the foot in this position, which ones I could not say until after the patient was etherized, I might be able to improve the condition of their child.

Then by applying a retention shoe I hoped to be able to hold the foot in the proper position.

When I etherized the patient I was not surprised to see the contracted condition of all the muscles disappear, excepting the calf muscles. I divided the tendo Achillis, which permitted the foot to come into good position. It also relieved the slight flexion in the knee (which I had forgotten to mention,) which can be explained from the fact of the gastrocnemius arising from the condyles of the femur. I then placed the foot in plaster of Paris and allowed it to remain there for a few weeks, the child playing and walking as much as she desired. When I removed the plaster I applied an ordinary ankle brace with a "stop joint," to prevent the foot from returning to its former position.

It is now past eight months since the operation, and the child has not had the slightest spasm of any of the muscles of the foot. The ankle joint will permit of almost the normal movements, and she walks with but a slight limp. (See Fig. 2).

PRACTICAL POINTS IN THE TREATMENT OF POTT'S DISEASE.

By J. E. Moore, M. D.

Minneapolis.

I choose this subject because cases are so frequently brought to my notice that have been either altogether neglected, or have been very badly treated. While I have not time to dwell upon diagnosis, I cannot refrain from suggesting that treatment cannot be very satisfactory in these cases unless an early diagnosis is made. It is the duty of every practitioner to bear this in mind, and to make sure that none of the little ones coming under his care are allowed to suffer from this disease until a marked deformity occurs before a diagnosis is made. It is scarcely to the credit of the profession that in the majority of cases the mother is the one to call attention to the deformity, for it is very rarely indeed that this disease goes on to the stage of deformity without the child

Digitized by Google

having had a medical attendant. Every child that is troubled persistently by pain in the abdomen, and by other symptoms that usually point to intestinal indigestion should be carefully examined for Pott's disease. Whenever a child acts as if it were afraid to move, or when it crouches down instead of stooping, there is reason to suspect that it has this disease whether it complains of pain or not.

We should never depend upon the presence of deformity to make a diagnosis, because it is very necessary that a diagnosis should be made before deformity appears, so that we may prevent deformity and by proper support arrest the disease before it has advanced to the destructive stage.

We naturally divide the treatment of every case coming under the care of a surgeon into constitutional and local. Not many years ago the treatment of Pott's disease was almost exclusively constitutional, and the mortality rate was thirty per cent. At the present time our treatment is mostly local, and our mortality is but ten per cent. Some reliable men claim to have a mortality rate of five per cent. This change for the better has been brought about by changes in our views as to cause and pathology. So long as that vague but happily now obsolete term scrofula was applied to these cases, the treatment was constitutional and the results bad. At the present time the constitutional treatment can be summed up in a very few words. If we nourish our patient, and meet indications as they arise, we cover the whole ground. I do not prescribe cod liver oil, because it has no specific action, it is greatly inferior to good rich milk, and it disturbs the patient's stomach. I should as soon take axle grease myself. Plenty of fresh air is very desirable, and although I have had no experience with oxygen I believe it would be useful.

Our dependence at the present day is upon mechanical treatment. We have learned that the disease is pathologically a tubercular osteitis, and that when we protect the diseased part by mechanical appliances Nature comes to our aid and works a cure in the majority of cases.

Many failures from mechanical appliances are on record. These failures are dependent upon many causes but are usually due either to the appliance having been put on too late, to the use of a poor appliance, or to the fact that the person applying the apparatus did not understand the principles of its application.

When deformity has already taken place we cannot hope to overcome it but must endeavor to prevent an increase of it. Mechanical appliances are of value at any stage of the disease before ankylosis has taken place. After this they are, of course, useless. Unfortunately the most popular braces among instrument dealers are the poorest ones. The most popular one of all, judging from the number I have taken off and thrown away, is that consisting of a padded steel waist-band, with two steel uprights extending about two-thirds of the distance up the back and ending in two little round pads, and an upright on either side ending in a crutch that is intended to carry the weight of the head and shoulders by pressure in the axilla. Now every orthopedist knows that that is not a practical instrument, because a patient cannot bear sufficient pressure in the axilla to be of value on account of pain and interference with the circulation in the arms, and because the shoulder is so freely movable up and down that it is impossible to get adequate support at this point. I find this brace is applied by dealers to all cases alike, whether the disease is situated low down in the lumbar region or high up in the dorsal region. I have frequently had patients come to me wearing this variety of brace when the disease was at the upper end of the brace and the patient was literally bending over the top of it, so that it was doing great harm. I am sure this pattern of brace has done infinitely more harm than good.

One who thoroughly understands the principles of the mechanical treatment of these cases has a variety of good appliances at hand, and can get good results with any of them. It is not well for a surgeon to be wedded to one particular variety of appliance, because no one variety is best in every case. Every orthopedist has his favorite that he applies to most of his cases and he naturally becomes expert in its use. This is proper and right, but when he becomes so prejudiced that he applies the same variety of brace to every case, he makes a serious mistake and some of his patients must suffier for it.

The great object of mechanical treatment in Pott's disease is to secure rest, and the appliance that is most likely to accomplish this in a given case is the one to select. With perfect rest Nature can do wonders in this disease. She works a cure in different ways at different stages of the disease. At a very early stage the tubercular matter becomes absorbed or encysted so that the function of the part is preserved. At a later stage when parts of the vertebræ are destroyed, the best we can hope for is that new bone will be thrown out, which will bind the remaining parts of vertebræ together causing complete ankylosis.

In treating this disease we must bear in mind that the indications are to arrest the disease by securing as near perfect rest as possible, and to prevent deformity or an increase of deformity already existing. In the vast majority of cases the disease begins in the bodies of the vertebræ, and it rarely extends beyond the body. It is important to remember this, and to take advantage of it in applying a support. Our aim should be to remove the superincumbent weight from the diseased part and to throw it upon the healthy part as much as possible. Our choice of mechanical support lies between some variety of corset and an anteroposterior support. Each has its advantages and disadvantages, and neither one is applicable to all

Digitized by Google

cases. My personal preference is for the antero-posterior support. It should consist of a steel waist-band and two steel uprights. It acts as a lever, the transverse processes at the seat of deformity being the fulcrum. The uprights should not be so heavy as to be burdensome, but they are very often made too light. They should be heavy enough so that they will not allow of springing motion. A surgeon who sends to a shop and buys a brace, or who sends his patient to a shop to have a brace made, will be disappointed, for it is not in the variety or mechanical construction of a brace that success lies, but in the intelligent application of it. A mechanic or a dealer in appliances who knows nothing of anatomy or of disease cannot possibly understand the principles of treatment. It is quite common for a medical attendant to send a case of Pott's disease to an instrument dealer for treatment. In so doing he is shirking responsibility and turning a trusting patient over to incompetent hands. It would be just as proper for him to turn his typhoid fever cases over to the druggist for treatment. Each brace should be made from accurate measurements taken by the medical attendant himself. The best way to secure an accurate fit is to place the patient prone upon a table and take the outline of his back with a strip of lead or block tin. This outline can be traced upon paper, and this tracing can be taken to the instrument maker as a pattern. The uprights should be just far enough apart to bear upon the transverse processes without touching the spinous processes. The greatest amount of pressure must necessarily come upon the transverse processes opposite the seat of deformity. Every case should be closely watched so that the requisite amount of support is obtained without injury to the integument. The advantages of the steel support as compared with the plaster jacket are that it admits of frequent removal for inspection and cleanliness, and it is less likely to cause abrasions of the skin. The disadvantages are that it requires considerable skill to apply it properly, which can only be acquired through experience, and that it is more expensive than plaster. Another serious objection is that when the patient is relieved of pain he is apt to think he is doing so well that he can dispense with the services of a medical attendant. The consequence is that he may be doing badly without realizing it.

The plaster of Paris jacket is undoubtedly the most popular method of treating Pott's disease in the United States at the present time, and while it is open to many objections it is capable of doing great good, and is within the reach of all.

There is probably no one method of treatment that has received so much praise or so much criticism as this one. While it is not my first choice, I use it very often, and with very satisfactory results, and while it is not applicable to every case it is the very best application known in some cases. I find that those who condemn it most emphatically know the least concerning its application. I have heard men condemn it as being heavy and uncomfortable. It was heavy and uncomfortable when those men applied it. That it is not heavy when properly applied goes without saying. That it is not uncomfortable, but that it is a great source of comfort, is proven by the hundreds of unfortunates who have worn it, and by hundreds of others who are now wearing it. The most common error in its application is in making the jacket of too coarse material and using too much of it. I remember one instance in which I removed a jacket that weighed fourteen pounds, and which was fully an inch thick. A jacket for an adult should not weigh over three and a half or four pounds. Cheese cloth is not proper material for making a jacket, because its meshes are too fine and it is too heavy. Medium weight crinoline with most of the sizing taken out by washing, and the best moulding plaster are the only proper materials to use. The commercial plaster can only be used by adding salt to it to make it set, and then it is heavy and brittle, and makes a clumsy and unsatisfactory job. The principles are just the same whether we use the jacket or some other appliance. We should aim to fix the spine in the best attainable position and to throw as much weight as possible from the diseased parts to the healthy parts. It is a mistake to think that a jacket is to be so applied as to carry weight directly from the shoulders to the hips, and one who applies it for this purpose will be disappointed. The most important objections to the jacket are that it does not allow of frequent removal for inspection and cleanliness, and that it is liable at times to chafe. The matter of cleanliness depends largely upon the person. I have patients wearing jackets who certainly are not dirty. The body can be cleansed with the jacket on. Chafing can be avoided by exercising care and skill in the application, and by judicious padding. The jacket is the best appliance in cases that show a tendency to rapid increase of deformity.

Every case of Pott's disease in which the disease is located at or above the fourth dorsal vertebra, and many in which it is situated as low as the seventh, require a head support. This can be very readily attached to either brace or jacket. I find that a frequent mistake made in applying a jacket with the jury mast attachment is that the plaster is not applied high enough. The consequence is that the shoulders and chin fall forward increasing the deformity.

A number of English orthopedists of good repute, and a few Americans, advocate keeping the patient on his back in bed until the disease is cured. I cannot condemn this method outright, because I have had very little personal experience. Occasionally I am obliged to put a patient to bed. At the present time I have one little girl six years old

Digitized by Google

on her back, where she has been for the past four months. Her disease is in the upper dorsal region, and although she was quite well and suffering very little with pain, the deformity was increasing so rapidly in spite of every appliance I could use, that I deemed it advisable to take her off of her feet.

She is wearing a plaster jacket and lies on her back all the time. I dare not leave off the jacket, because she is so free from pain that it is absolutely impossible to keep the spine at rest without it. Theoretically this method of treatment is highly objectionable, because this disease is tubercular in character, and our experience all goes to show that out-door exercise is very necessary for tuberculous patients. It is the exception when the disease proves fatal *per se*. Death is almost invariably due to some tubercular complication, most frequently meningitis. Although I cannot approve of the recumbent treatment from my present knowledge, I am open to conviction, and am very anxious to see some reliable statistics bearing upon this point. If it can be demonstrated that the mortality rate is not greater than in methods permitting out-door exercise, it is a great boon, for I am sure that some of the unsightly deformities that we cannot always prevent in the upright position, could be prevented in the horizontal position.

A STUDY OF THE NATURE AND CAUSATION OF INFLAMMATORY AND SUPPURATIVE BONE AND JOINT DISEASES.

By Louis Bauer, M. D., M. R. C. S. (England).

St. Louis, Mo.

The profession may well rejoice at the phenomenal advancement of surgery during the last decades The progress is mainly due to change of base in the methods of our work. Speculation has at last been forced into a back seat and the search for stubborn facts will henceforth take the lead.

The sword of Brennus and personal authority have lost their dictature. Medicine is no more the abstract philosophy of the past, but as it was originally, a branch of natural science. But individual importunity is as rampant as ever to attract notice and preoccupy scientific attention at the expense of actual evidence.

The profession has just been emancipated from an incubus which had retarded its onward march for a century and held it in intellectual bondage. The term "scrofulosis" and its pathological vagaries have at last vanished from the scientific arena and been sent into the crematory of history.

But are we not gradually drifting into a similar error by giving undue sway to another theory equally mischievous and hampering professional thought and independent action?

I hope not to raise the suspicion that I doubt the modern disclosures of the microscope and the pathological facts elicited by experiments. Such would be unjust. I intend only to caution against precipitate inferences and assertions without the legitimate pillars of supporting them. Whilst to bacteriology and the infectious doctrine a disproportionate influence has been conceded, facts are every day adduced by equally reliable writers exposing many assertions of the new school to serious doubt.

At least they materially undermined the pathological autocracy of the microörganisms. The morbid importance formerly ascribed to the unknown quantity of scrofulous toxine, is now attributed to the delicate bacillus tuberculosis. Whether this is a mere change of terms, the future will decide. Sufficient evidence is already accumulating to sober the self-confidence of the bacteriologists in essential points.

As long as we are helpless against the parasitic intruders, we are just in the same plight, as we were with the materia peccans of scrofulosis: all our therapeutical efforts went to naught, and at last we had to accept the advice of the great German bard, Goethe, in his "Faust," "Let it go, as it pleases God." So far as I know, none of the numerous antiseptic substances has added to our efficiency against the bacillus; they have proven as dangerous if not more so to the life of the patient than to the bacillus.

The position of the physician in the treatment of tuberculosis is even worse than it was in bygone times with reference to scrofula. Against the latter we could enter the battle field with the rancid cod-liver oil and the derivatory method, but these panaceas have been exploded with the strumous theory.

The present generation cannot form an estimate of the blind confidence which formerly was reposed in the saving effects of derivation. I well remember the solemnity and self-assurance with which Prof. Rust, of Berlin, once the greatest surgeon of Germany, inculcated the great virtue of derivation which empowered the physician not only to change the locality but likewise the character of any disease by establishing external sores. The actual and potential cauteries never failed to terrify the patient and to superadd with unerring certainty to their sufferings, whilst their benefits proved chimerical.

If anyone had dared to challenge the rationality of such theories, he would have been frowned down as an impertinent meddler and excommunicated from all social and scientific recognition.

Impregnated as I was, myself, by the extolled virtues of derivation, I entertain no doubt of my having committed grave errors in that direction. But for thirty years I have done sincere penance against those insane teachings for which, of course, I have received my full share of abuse from our

Digitized by Google

"liberal" profession. Time has since converted the abuse into distinction, and I consider myself amply repaid for the painful ordeal to which I was once subjected.

The more recent publications on the subject are all in *harmonious* accord, that *all diseases, formerly attributed to the Deus ex machina of scrofulosis, have always been and are now due to the invasion of the structures by the omnipotent bacillus.*

Once the scrofulous diathesis propelled a certain class of lesions; now tubercular infection answers the same purpose. With all it is the identical humoral pathology, that shaped then and again constructs the pathogenetic theory.

I have neither time, pretence nor taste to enter into a general discussion on the subject. That I would leave to younger and abler knights of science. But I am determined to keep the arena free from false doctrines to the best of my ability.

Now I believe, nay I know for certain, that under the full sway of the scrofulous doctrine, articular and spinal maladies *run their course to the bitter end in spite of the most approved anti-scrofulous treatment.* But that in a reverse ratio their management has become more effective as *their constitutional causation was ignored and the therapeutic efforts were centered upon the local management.*

No surgeon at all acquainted with the subject will withhold his assent to the preceding proposition, that articular and spinal diseases have fared better by a strictly local treatment. The logic of these indisputable axioms tends to point at *their local causation* in contra-distinction to constitutional origin.

This logic becomes the more forcible and convincing when it is understood that the local treatment is almost exclusively mechanical.

This position is fortified by the additional fact, that both articular and spinal diseases are *invariably relieved* by rest and position of the affected parts and *aggravated by motion.* Thus it follows that *motion,* and we might add superincumbent pressure, is a propelling factor in articular and spinal affections. There is no question in my mind that the disregard of rest and position is more calculated to keep up and advance the morbid action than tubercular deposits are capable of doing. The infectionists insist that every tubercular focus is preceded by constitutional impregnation, and that an accidental inoculation with tubercular virus gradually compromises the entire organism.

Supposing, however, a tubercular focus is thoroughly destroyed by the curette or by excision and thus obliterated, the infectionists are by no means disheartened. They tell us that the locus minoris resistentiæ has ceased to exist in attracting the bacillus to that particular locality. In point of fact, this is no answer at all, for the curetting and excision has left a larger focus than before.

Of course I have observed acute and chronic diseases of the articulations and of the spine which were the reflections of constitutional disorder, *multilocular* in extent, either at one time or successively, not amenable to local treatment as long as the constitutional excitation prevails. But those cases, for instance, rheumatism, gout, syphillis, defects of general nutrition, etc., are comparatively rare, whilst cases of local, especially of traumatic origin, are the most numerous.

I know this view of mine has been recognized by a comparative few, but is opposed by the majority of surgeons of all progressive countries. They concede a fractional rate to serious traumatism, but the bulk of cases are consigned to constitutional invasion, respectively tubercular infection.

In logical contradiction with their constitutional ætiology, they rely with equal tenacity and success on local and mechanical treatment, on rest and position of the compromised localities as their opponents do, who limit the constitutional origin to comparatively but isolated cases. In perusing the largest available statistics, that of Menzel*—without critical analysis, false conclusions must be reached.

The tables of Menzel are filled with the minute records of 52,256 carefully recorded post mortem examinations, in the General Hospital of Vienna during a period of 50 years (1817–1867). Of this number 2,106 cases of necrosis and caries are mentioned. Strange to say, very few autopsies were made upon children below ten years of age, notwithstanding that childhood offers greater attractions to tuberculosis than adult age. Of these, 1,295 were men and 811 women. The cases were distributed over the various bones of the skeleton as follows:

Bones of the skull and face		205
" "	spine	702
	sternum, clavicle and ribs	184
	scapula	4
	shoulder-joint	28
	shaft of humerus	13
	ankle joint and bones of the foot	150
	elbow-joint	93
	shafts of ulna and radius	6
	wrist-joint and bones of hand	41
	pelvis	80
	shaft of femur	31
	knee-joint	238
	tibia	30
	fibula	2
		1,996

It is evident from this schedule that the cancellated structure and spine are more frequently at-

*Ueber die Hæufigkeit der Caries in den Verschiedenen Knochen. Archiv. f. Klin. Chir. Bd. II, 1871.

Digitized by Google

tacked than the shafts of the cylindrical bones. It further discloses the fact that the spine is more frequently the seat of caries than any other part of the skeleton (22 per cent.) In 26.01 per cent. of all cases, amyloid and fatty liver, structural degenerations of the kidneys are noted; caverns, caseated foci, ulceration and tubercules were detected in 54 per cent. Miliary tuberculosis was met with but exceptionally. The average duration of life of that class of patients vacillated between 25 and 30 years. Twenty-two per cent. of the cases were absolutely free from diffuse affection in other localities.

The statistical report of Prof. Muench of the clinical work of the Basle University covers a period of 14 years (1862-1876). 421 of the cases admitted were affected with caries and fungoid arthritis. The lesions were distributed amongst the various parts of the skeleton in the following proportion:

Bones of the head	22	8.03 per cent.
" " trunk	89	33.06 "
" " superior extremity	59	22.03 "
Bones of inferior extremity	89	33.06 "
Multiple caries	6.	2. "

In all 265 cases of caries.

The most frequent cause of death proved to be *gradual loss of weight and vigor, chronic nephritis, amyloid* and *fatty degeneration of the liver and heart, thrombosis of the veins 46 per cent.*, from pulmonary phthisis 38 per cent., *acute miliary tuberculosis 10 per cent.;* the balance were due to various and accidental causes.

The otherwise very valuable statistics of Menzel are obviously defective by omissions of infantile diseases of the skeleton. The same defect exists in the statistics of Muench. For the average duration of life in patients afflicted with that class of diseases is calculated by him about 31 years, almost the same as by Menzel, *which would not be so high if infancy had been included in his calculations.*

The fact that the percentage of suppurating bones and fungoid joint affections is conspicuously larger *in the male sex than in the female has its meaning.* In both sexes to syphilis must be accorded its proportion especially in parts of the skeleton more endowed with cortical substance. But, as may be seen, the favorite seats of caries are obviously in the immediate vicinity if not directly in *the cancellated osseous tissue.* What causes concussion, depression, demolition, hemorrhagic clots etc., in the cancellated tissue, may in all probability provoke fracture of the shafts.

Moreover, we find some parts of the skeleton *more exposed to accidents* than others, and in affirmation, the two statistical tables record them as more *frequently compromised* and attacked by this class of lesions. Most prominently are mentioned *the spine and the knee-joint,* each of which exhibits a percentage *of 33.06 of all cases.* The former more or less partakes either directly in falls or indirectly in spinal concussions. Galenus already appreciated this exposure of the vertebral column in assigning to it the identical rôle which the keel holds in a ship.

The infantile spine is far more susceptible to mechanical derangement than is generally supposed by surgeons. This is partly owing to the anatomical composition of each vertebra of seven different fragments of ossification. In proof of this view I could adduce several clinical observations. One case is particularly interesting since I had it under my charge from the very beginning to its final issue.

A little girl of about five years fell flat on her back upon an even granite sidewalk. The pain following the accident was so intense as to alarm the family. On my visit, an hour after the fall, I noticed at once *the prominence of the spinous process* of the 5th thoracic vertebra. This with tenderness of the locality on pressure, I looked upon as strong evidence of a fracture of the body of the said vertebra.

Extension and recumbency rendered the little patient comfortable. The application of my cuirass for the immobilization of the spine was kept in abeyance. The patient was doing so well under this plan, that the parents relaxed in their supervision and at the end of a fortnight allowed her to get up and about. My protest remained unheeded.

In about six weeks after the accident, I was again called upon to see the child and found her in high fever, apnœa, distension of the left side of the thorax and corresponding dullness on percussion. Diagnosis: *Empyema* of left pleural cavity—*Probably evoked by the perforation of an abscess formed about the vertebral fracture.* In 36 hours death ensued.

The autopsy confirmed my diagnosis in every particular. A thin, wedge-like fragment had been split off in front of the vertebral body and was still connected by its base with the subjacent inter-vertebral cartilage. At the latter point the spine was angularly flexed and the fragment pushed forward. An abscess had formed in front and around the fracture opening into the left pleural cavity.

Similar anatomical conditions as in the spine prevail in the construction of the infantile articulation. Hence they are likely to be interfered with by like mechanical causes.

Among the clinical cases referred to by Muench are but six with multilocular caries, suggesting their constitutional causation.

Some of the conditions revealed by the post-mortem and referred to by Menzel, namely, amyloid and fatty degeneration of the heart, liver and kidneys are the usual consequences of like diseases of bones and joints and Muench holds them in a similar estimation.

The average duration of the clinical cases at Basle was 27 months. Miliary tuberculosis was not as rare among the patients of Muench as in

Digitized by Google

Vienna. The prevailing complications in either group were amyloid and fatty degeneration of the heart, liver and kidneys and *thrombosis* of veins. About 46 per cent. of Muench's patients gradually sunk and died from sheer exhaustion, 38 per cent. from phthisis, 10 per cent. from tuberculosis and 6 per cent. from other causes.

In Menzel's report it appears that 22 per cent. were *free from general chronic complications;* in 26.01 per cent. there were the same pathological changes which Muench had noticed and recorded; but 54 per cent. furnished p. m. evidences of caseated foci, ulcerations, caverns and tubercule. Miliary tuberculosis was met with but rarely.

Exhaustive diseases of an average duration of 27 months, with pyæmia and its metastatic consequences, will necessarily give rise to pathological conditions very like those mentioned by Menzel.

But even admitting the diagnosis of tuberculosis as implied by Menzel in his 54 per cent., 26 per cent. are *free from all suspicion of that character* and may therefore have originated with traumata, for all we know. This leaves of course the question open, whether tuberculosis was clearly proven by reliable methods or merely taken for granted from appearances. For the bacillus tuberculosis had not been discovered either prior to or during the period when the autopsies were made upon which Menzel grounds his statistical report.

Even as late as the German Surgical Congress in 1881, at Berlin, the diagnostic evidence of tubercule was by no means settled. Sonnenburg relied as proof on the microscope, Hueter on experimental inoculation, Klebs asserted that syphilis produced the very same textural metamorphosis as tuberculosis and Prof. Tiersch moved the postponement of the discussion as premature.

In fine, here is still another vital question connected with the subject named, whether the bacillus tuberculosis is really the active principle of the disease or a subsequent acquisition? Rinne's experiments certainly point that way.

In summing up the arguments, I submit the following theses:

1. Modern writers on the subject admit *promiscuous accidents and injuries* to the skeleton during childhood, but consider them harmless unless they find the constitution fully prepared with pathogenetic elements. In other words, *the injury means nothing*, the constitutional vitiation everything.

2. Thus the disease is engendered, and gradually develops to dangerous proportions. As long as the patient is free from pain, no measures are taken to intercept the growing trouble. When the pain or deformity become a disturber of comfort, then and not until then is the disease taken notice of, and pronounced tubercular, according to the modern theory.

3. The physician is as *helpless against the symptoms caused by assumed scrofulosis as by assumed tuberculosis.* All he can do to improve the constitution is by surrounding the patient with hygienic and dietetic advantages.

4. In reference to the local affection, the same remedies are resorted to which *modern surgery has introduced and demonstrated, by stubborn clinical facts, to be beneficial, effective and even curative.*

5. The benefits derived from the *exclusively* local and *mechanical means*, suggest that only local diseases can be thus overcome. Nevertheless, this suggestive logic is ignored, and another one, ætiology, based exclusively on theory and arbitrary speculation, is put in its place.

6. When this tubercular affection is taken hold of, *rest and position enforced*, the troubles ameliorate *at once;* become gradually *repressed*, and in a good percentage of cases, *full repair and recovery* ensue. The logical inference suggests:

a. The *strictly local origin* of the disease which has yielded to *exclusive local treatment.*

b. If rest and position alone are so effective in the reconstruction of healthy structures, it seems to be very conclusive that *motion constitutes a propelling factor* in the advancement of the former disease.

7. It is held by the bacteriologists that the parasites must be transmitted by heredity, or acquired *per vias naturales* or wounds. Before the bacillus can assert its specific mischief *it must become a part and parcel of the constitution*, and thus enjoy free admission to all parts of the body. As already stated, the bacillus is supposed to *pre-exist* before an injury is inflicted, then it rushes to the traumatized locality and commences its pathological devastations. This is the train of prevailing opinion.

8. After the bacillus tuberculosis has acquired firm hold of the constitution and the local focus, has succeeded in producing an unknown quantity of ptomaines or toxine, a surgeon is put in requisition and he *exsects the entire morbid structure, and the patient recovers.*

9. The followers of Koch contend that the l. m. r. was removed and the patient recovered, but they lost sight of two things:

a. That the constitutional invasion of the bacillus remains unchanged, and

b. That for the old *locus minoris resistentiæ* a new one has been created by the operation. Notwithstanding that *the patient recovered* the theory of constitutional causation is upheld in the face of contradictory facts.

10. Assuming a case of Pott's disease, spondylitis has preceded caries of vertebral bodies. The matter forming descends to the groin along the aponeurosis of the psoas major. In the vicinity of the small trochanter an abscess is formed and growing. The disease of the spine is *of course* tubercular! *So* is the pus of the consecutive abscess. By proper treatment in the recumbent posture, the local disturbance is somewhat ameliorated, and

Digitized by Google

the supply of pus to the reservoir lessened. Resorption diminishes the purulent collection. Fatty degeneration of the pus cells prevails, and the once large mass shrinks to a cheesy remnant, which may eventually be squeezed out through the spontaneous softening of the integument. These are *facts*, presenting themselves to the observation of physicians.

11. If the patient was invaded by the tubercular bacillus; if the bacillus availed itself of an l. m. r.; if this l. m. r. was gradually obliterated by proper treatment; if the pus formed at the spine, together with the bacilli, escaped into new quarters, and failing to improve by the opportunity, the pus evaporates, the bacillus goes into hibernation, and the patient gradually gets well—what becomes of the bacilli located in the original focus? What of the bacilli which remain in the constitution? What of the bacillus in the psoas abscess?

Verily, the bacillus is not as tyranical and dangerous to the constitution as its admirers would have it.

12. Has it been absolutely proven that microbes are not scavengers merely?

DISEASES OF THE NERVOUS SYSTEM.

C. M. FERRO, M. D., CHAIRMAN.

HEMIANOPSIA FROM CEREBRAL SYPHILIS.—RECOVERY.

BY EDWARD J. BROWN, M. D.

Minneapolis.

H., aged 56 yrs., compositor, was sent to me on Jan. 18, 1890, by Dr. R. O. Beard. Complains that he has had a feeling of top-heaviness and dizziness for two months, and that this morning he cannot see objects clearly at a glance but only after an effort. Vision: R. E. 15-30. L. E. 15-10. Rejects glasses for distance. Eyes appear normal externally, muscles act well and pupils react to light. The ophthalmoscope reveals traces of an old specific retinitis in R. eye, spots of pigment in periphery, and in L. eye a normal fundus.

Both visual fields are slightly contracted superiorly and totally wanting at the left. H. gives a history of having contracted syphilis 25 years ago. Had a primary sore, took iodide of potash for a long time, but no mercury as he was prejudiced against it. Thinks he never had any constitutional symptoms, but has a flattened nose, which is very suggestive. He says that twelve years ago, from exposure to a Brush electric light while working at his trade in Chicago, he had trouble with his right eye, flashes of light and dimness of vision. A well-known specialist told him he had "partial paralysis" of the nerve, gave him strychnia and the eye got better. This attack probably accounts for the present traces of former retinitis.

The diagnosis of hemianopsia from probable syphilitic lesion of the brain was clear, and he was at once ordered a vigorous course of mercurial inunction with iodide of potassium to the limit of toleration. A couple of days later Dr. Beard told me that H. had been somewhat strange for 6 months, his memory had been bad, he had been slow to catch questions, etc. The family say that his nose was deformed by an attack of erysipelas since his marriage.

Jan. 21 he became so much worse that Dr. Beard was hastily summoned. Dr. Beard writes on Jan. 22: "He shows now great tendency to sleep; being aroused with difficulty and dropping off again immediately; vomits occasionally, is extremely dizzy, is unable to stand without support or to walk without staggering, is somewhat deaf, has commencing facial palsy on the left; the eyes show a strabismal tendency, and the pupils are slightly unequal. Am rushing the iodide." Jan. 23, I see H. with Dr. Beard who continues in charge of the case. He is much better, is fully awake, stands and walks with but little difficulty. There is slight facial paralysis, left, and the tongue when protruded turns to the left. There is also hemianæsthesia. The eye muscles act normally. When the sensitive half of each retina is illuminated the pupil reacts fairly, but when the amaurotic half only is illuminated the reflex is very slight and in the right scarcely perceptible. Both fields are much improved, but a considerable segment of the left field, peripherically, in each is still wanting, and there is a scotoma for red in the lower half of each field. On March 26 the patient was steadily improving, complaining only of a slight effort in fixing small objects, and of the deficiency of muscular power and sensibility of the left extremities. The fields were fairly good, showing only defects arising from the retinal lesions. Dr. B. was continuing the iodide with strychnia and galvanism. May 1, the vision was 15-10 in each eye.

TOTAL BLINDNESS FOLLOWING SHOCK.—RECOVERY.

BY EDWARD J. BROWN, M. D.

Minneapolis.

Nov. 18, 1889, I was called in consultation with Dr. J. W. Murray to see J., a well-developed boy of six years, who had become blind the day before. The boy had been exceptionally rugged and active. Oct. 23 he had had a transient attack of headache and vomiting. Nov. 4 he had been seen by Dr. Murray for a transient attack of what seemed to be a cold, accompanied by wandering rheumatic pains in the feet and limbs. Nov. 12 Dr. M. was again called and found a mild tonsillitis with a temperature of 101°. Nov. 14 the mother fell down stairs;

Digitized by Google

the boy was greatly frightened, and was soon seized with a severe headache followed by epistaxis and relief. Light diet had been ordered, but on the 16th he was so well and so hungry that he was allowed to eat a large piece of beef-steak for supper. The following day he had a convulsion followed by total blindness.

Status præsens, Nov. 18. Is nervous and restless but does not complain of pain. Answers questions slowly but intelligently. Sensibility is much diminished in the extremities The pupils are moderately dilated and both react slightly to light, but the left less than the right. The ophthalmoscope shows no changes at the fundus. Dr. Murray is giving small doses of calomel and iodide of potassium. No change suggested. Nov. 20 vision began to return and two days later was fairly good. Dec. 3 there is some anæsthesia of the hands and feet as well as diminished control of them. The arms and legs are considerably shrunken and at times there are pains in the latter. The right pupil reacts sluggishly to light. Vision is good and the fundus normal in both eyes. There is headache at times, but the boy eats and sleeps well and is steadily improving.

At the present time Dr. Murray reports the boy as entirely recovered.

NECROLOGY.

T. M. COLE, M. D., CHAIRMAN.

SAMUEL B. SHEARDOWN, M. D.

Samuel B. Sheardown, M. D., died of diabetes mellitus at Winona, Minn., on the 1st day of August, 1889, in the sixty-third year of his age.

Deceased was the son of Rev. Thos. S. and Esther Grassam Sheardown, who emigrated from England to this country in 1820. Rev. Sheardown was a Baptist clergyman of more than ordinary ability and distinction in his locality.

Dr. Sheardown was born in Catlin, Chemung County, New York, on the 7th day of October, 1826. His early years did not differ materially from those of other boys born in the then almost unbroken wilderness of Southwestern New York. He received such education as was to be obtained in the few months' school taught each year in the rude log school houses of a new and sparsely settled country, supplemented however by valuable assistance from his father and mother who were educated people.

During 1846, 1847 and 1848 he alternately taught school and attended Starkey Seminary, an institution of considerable note situated on the west bank of Seneca Lake, between Jefferson (now Watkins) and Geneva. During these years he also pursued the study of medicine under the guidance of Dr. Nelson Winton, of Havana, Chemung County, a practitioner noted as a skillful surgeon and an able physician.

In the winter of 1848 he entered Geneva Medical College and graduated therefrom in 1851. He then returned to Havana and entered upon the practice of his profession.

On the 29th day of March, 1854, he married Miss Mary A. Winton, the accomplished daughter of his former preceptor. He remained at Havana for a period of four years and met with more than usual success in practice.

Being desirous of securing a more lucrative business he came to the Territory of Minnesota in the summer of 1855, and in company with Mr. A. C. Smith established a drug store in the then flourishing village of Winona. In January, 1856, he disposed of his interest in the store to his partner, opened an office and resumed the practice of medicine and surgery. The following May he entered into partnership with Dr. J. M. Cole, a pioneer physician of Winona, which continued until the summer of 1857 when he decided to remain in the territory, opened an office and practised alone until 1859, when, having purchased an interest in a flouring mill in the neighboring village of Stockton, he was induced to change his residence to that point. Notwithstanding other business engagements he established an office for the practice of medicine at that place, which office, though he was compelled to be absent temporarily at times, was maintained from that date to the time of his death, a period of nearly thirty years.

In August, 1862, Dr. Sheardown recruited two companies of volunteers, which were mustered into the 9th Regt. Minn. Vol. Infantry. Owing to some misunderstanding he was not commissioned in this regiment. On the 16th day of October, 1862, he was appointed surgeon of the 10th Regt. Minn. Vol., in which capacity he served until he was mustered out with his regiment at Ft. Snelling on the 19th of August, 1865. He was on duty at Mankato in 1862, and witnessed the multiple execution of Indians which took place at that station. There is little record of his work in the army which is accessible.

A former colonel of the 10th, Gen. S. P. Jennison, writes, under date of Sept. 12, 1889, to a mutual friend as follows:

"I have had your note of 20th ult. in mind since its receipt, waiting for our regimental reunion that I might confirm my own impressions of Dr. Sheardown's army service by those of line officers and enlisted men, who knew more, the first at least, of his success in dealing with the sick of the regiment. Dr. S. was not upon detached service from the regiment at all, I think, except when detached in the field hospital service at Tupelo, July 14 and 15, 1864, and later at Nashville, Dec. 15 and 16, and on days following. On these occasions, especially at Nashville, I was told by our brigade commander, Gen. W. L. McMillen, who was him-

Digitized by Google

self a physician and surgeon, and who had served attached to a French regiment in the Crimea, that Sheardown was the one who directed whether surgical operation was necessary or could possibly avail anything and what the operation should be if any, partly on his own account, because he did not like to hold the knife, and partly because he was of such rapid and superior judgment in deciding upon cases. Yet he never cared to get a reputation for intuition in that duty. He never judged off-hand but got hold of all the facts first. I stated to the survivors at the reunion that it seemed to me that Sheardown was remarkably successful in detecting sham sickness and caring for the real. I never heard a man complain that he had been to Sheardown for medicine or relief from duty or a ride in an ambulance and had been refused. On the other hand I never heard an officer complain that the surgeon was excusing well men from duty, who only shammed sickness. But three of four arose on the 10th to tell how Sheardown had put them off duty on some occasion when they had not thought themselves unfit for duty, because he saw in their faces and manner symptoms of sickness which did come. The news that he was dead which a majority had not heard made a great impression upon them.

"The departure of not many of us will give the survivors of that regiment so real a heart pang as that of our trusted and loved surgeon."

The following from the report of the memorial committee at the reunion was unanimously adopted:

"We recommed that the following be spread upon the records of our association: Surgeon S. B. Sheardown died at his house in Winona on Aug. 1, 1889. He served with the regiment from its organization until it was mustered out of service. He was a skillful physician and surgeon, always careful and conscientious in the discharge of his duties. Genial and hospitable by nature, he succeeded in gaining the esteem and affection of the entire regiment. It is safe to say that Surgeon Sheardown had a better knowledge of the members of the Tenth Regiment of Minnesota physically and morally than any other man. He could detect a fraud almost unerringly and would expose him with as much good humor as he would tell a story or laugh at a joke. Scarcely any of us but had at some time to report to him for examination or prescription, and so we all at one time or another passed under his hand. After he was mustered out he never wearied in trying to help an old comrade when occasion presented itself, and we his old associates and comrades in arms desire to record our sincere admiration of his character and our sorrow at his death."

Dr. Sheardown was a member of the House of Representatives of Minnesota in 1862 and again in 1884. He was Senator from his district in 1869.

He was elected Treasurer of the Minnesota State Medical Society at its organization in 1868, and reëlected at each successive annual meeting during his life. Though absent at the meeting in 1889, for the first time, owing to, his fatal illness, he was given his old position by unanimous action. He was the first President of the Winona County Medical Society, having been elected at its organization in 1869. He filled the same place in 1870, 1877 and 1889.

Dr. Sheardown's wife died in Winona, June 25, 1877, after a lingering illness.

His only child, Thomas Winton Sheardown, a graduate of Jefferson Medical College, resides in Chicago. An adopted daughter to whom he was greatly attached is the wife of Mr. A. B. Blair, of Eyota, Minn.

Dr. Sheardown possessed a genial disposition and a quick perception. He was ever ready to respond to the call of suffering. In him the youug practitioner always found a true counsellor and a faithful friend. In his public life he was an ardent supporter of all educational interests. Frank, honest and honorable in the practice of his profession, he entertained the most profound abhorrence for anything which bore the semblance of quackery.

His long, exhausting illness was borne with patience, calmly awaiting the final summons.

Digitized by Google

ROSTER.

The *italicised* names are those of members elected in 1890.

A. W. Abbott,	Minneapolis.
E. J. Abbott.	St. Paul.
E. D. Abell,	Farmington.
J. H. Adair,	Owatonna.
C. P. Adams,	Hastings.
W. F. Adams,	Elgin.
J. C. Adams,	Lake City.
Wm. Alden,	Tower.
A. G. Aldrich,	Anoka.
Flora E. Aldrich,	Anoka.
Chas. T. Allen,	Minneapolis.
Frank Allport,	Minneapolis.
A. B. Ancker,	St. Paul.
J. V. Anderson,	Red Wing.
J. W. Andrews,	Mankato.
Clara E. Atkinson,	St. Paul.
R. S. Bacon,	Montevideo.
A. L. Baker,	Pleasant Grove.
J. F. Baker,	St. Paul.
R. D. Barber,	Worthington.
C. K. Bartlett,	St. Peter.
G. C. Barton,	Buffalo.
G. Willis Bass,	Minneapolis.
C. E. Bean,	St. Paul.
R. O. Beard,	Minneapolis.
J. Bedient,	Kasson.
W. L. Beebe,	St. Cloud.
J. W. Bell,	Minneapolis.
Charles Berry,	New Ulm.
W. W. Betts,	Minneapolis.
E. E. Bigelow,	Owatonna.
F. E. Bissell,	Litchfield.
Helen W. Bissell,	St. Paul.
F. A. Blackmer,	Albert Lea.
G. S. Brigham,	St. Cloud.
C. H. Boardman,	St. Paul.
Rob't. S. Bole,	St. Paul.
J. E. Bowers,	Duluth.
H. M. Bracken,	Minneapolis.
D. F. Brooks,	Minneiska.
E. J. Brown,	Minneapolis.
L. R. Brown,	St. Paul.
E. E. Brubaker,	Northfield.
Frank Burton,	Minneapolis.
W. J. Byrnes,	Minneapolis.
J. L. Camp,	Brainerd.
H. Carey,	Minneapolis.
A. B. Cates,	Minneapolis.
T. J. Catlin,	Delano.
J. W. Chamberlin,	St. Paul.
O. S. Chapman,	Minneapolis.
C. A. Chase,	Minneapolis.
E. Y. Chilton,	Howard Lake.
C. N. Clarke,	St. Charles.
Ida Clarke,	Rochester.
J. C. Cockburn,	Minneapolis.
H. B. Cogswell,	St. Paul.
J. M. Cole,	Winona.
J. B. Cole,	Minneiska.
E. E. Collins,	Duluth.
D. T. Collins,	Hinckley.
A. T. Conley,	Cannon Falls.
H. E. Conley,	Cannon Falls.
D. M. Cool,	Faribault.
C. O. Cooley,	Madelia.
Geo. M. Coon,	St. Paul.
Walter Courtney,	Brainerd.
R. O. Craig,	Janesville.
F. J. Cressey,	Granite Falls.
Edwin Crone,	Kerkhoven.
E. W. Cross,	Rochester.
D. S. Cummings,	Waseca.
Nels G. Dahlstedt,	Minneapolis.
A. W. Daniels,	St. Peter.
C. E. Dampier,	Crookston.
J. B. Darling,	St. Paul.
A. M. Davis,	Howard Lake.
E. J. Davis,	Mankato.
Wm. Davis,	St. Paul.
G. W. Davis,	Duluth.
H. W. Davis,	St. Paul.
David Day,	St. Paul.
W. W. Day,	St. Paul.
Wm. Deegan,	White Bear Lake.
F. Dedolph,	St. Paul.
Le Grand N. Denslow,	St. Paul.
Godfrey Deziel,	Minneapolis.
Wm. Dinwoodie,	St. Paul.
L. P. Dodge,	Farmington.
Frank A. Dodge,	Le Sueur.
Chas. Dolan,	Waterville.
J. W. Donnell,	Minneapolis.
Ignatius Donnelly, Jr.	St. Paul.
J. H. Dorsey,	Glencoe.
J. A. Dubois,	Sauk Center.
W. T. Duncan,	Fergus Falls.
J. H. Dunn,	Minneapolis.
J. B. Dunn,	Shakopee.
D. C. Durham,	Anoka.
F. A. Dunsmoor,	Minneapolis.
Peter J. Dwyer,	St. Paul.
J. J. Eklund,	Duluth.
Geo. W. Emery,	Minneapolis.
C. A. Entrup,	Shakopee.
O. J. Evans,	Minneapolis.
A. C. Fairbairn,	Minneapolis.
C. M. Ferro,	Tracy.
J. E. Finch,	Hastings.
E. A. Fisher,	Long Prairie.
J. C. Fitch,	Hastings.
S. D. Flagg,	St. Paul.
Oscar A. Fliesburg,	St. Paul.
W. D. Flinn,	Redwood Falls.
John Flood,	Kasson.
J. F. Force,	Minneapolis.
Burnside Foster,	Minneapolis.

Digitized by Google

S. O. Francis,	White Bear.
G. F. French,	Minneapolis.
S. Friedlander,	Minneapolis.
Edward S. Frost,	Wilmar.
J. F. Fulton,	St. Paul.
W. W. Furber,	Cottage Grove.
J. R. M. Gaskell,	South Stillwater.
E. S. Gibbs,	Monticello.
A. W. Giddings,	Anoka.
A. J. Gillette,	St. Paul.
A. O. Gilman,	St. Cloud.
W. G. Goffe,	Duluth.
A. J. Golden,	Minneapolis.
B. F. Graham,	Minneapolis.
C. A. Green,	Windom.
C. Gronwald,	Norway.
H. C. Grover,	Rushford.
A. F. Groves,	Brainerd.
W. A. Hall,	Minneapolis.
Willis E. Hallowell,	St. Paul.
Wm. H. Hallowell,	Minneapolis.
E. W. Hammes,	New Trier.
S. F. Hance,	Minneapolis.
W. R. Hand,	Herman.
P. Sprague Haskell,	St. Paul.
V. J. Hawkins,	St. Paul.
A. W. Hedderly,	Minneapolis.
A. F. Henderson,	Merriam Park.
Geo. A. Hendricks,	Minneapolis.
C. N. Hewitt,	Red Wing.
Chas. Hill,	Pine Island.
H. S. Hill,	N. Springfield, Mo.
R. J. Hill,	Minneapolis.
Knut Hoegh,	Minneapolis.
E. A. Holmes,	North St. Paul.
H. E. Holmes,	Minneapolis.
Mary G. Hood,	Minneapolis.
H. F. Hoyt,	St. Paul.
J. P. Humes,	Winnibago City.
A. M. Hunt,	Minneapolis.
Fred N. Hunt,	Fairmont.
C. H. Hunter,	Minneapolis.
E. A. Hutchins,	Minneapolis.
T. J. Hutton,	Fergus Falls.
L. D. Jackson,	Grand Meadow.
R. N. Jackson,	Faribault.
Bruno Jaenig,	Red Wing.
J. H. James,	St. Peter.
H. D. Jenckes,	Sauk Rapids.
Wm. Jenner,	St. Paul.
H. P. Johnson,	Houston.
J. P. Johnson,	Blooming Prairie.
T. H. Johnson,	St. Paul.
D. N. Jones,	Gaylord.
Philo E. Jones,	Red Wing.
Talbot Jones,	St. Paul.
W. A. Jones,	Minneapolis.
C. R. J. Kellum,	Heron Lake.
W. D. Kelly,	St. Paul.
P. N. Kelly,	Rochester.
V. P. Kennedy,	Litchfield.
D. L. Kenyon,	Worthington.
Edward D. Keyes,	Winona.
C. R. Keyes,	Byron.
A. F. Kilbourne,	Rochester.
S. S. Kilvington,	Minneapolis.
H. H. Kimball,	Minneapolis.
J. M. Kistler,	Minneapolis.
H. L. Knight,	Leroy.
John Kurtz,	Moorhead.
L. C. Lane,	Minneapolis.
N. S. Lane,	North St. Paul.
Geo. F. LaPaul,	Minneapolis.
W. A. Lang,	New Richland.
W. S. Laton,	Minneapolis.
H. E. Latz,	Minneapolis.
J. B. Lewis,	St. Paul.
W. L. Lincoln,	Wabasha.
A. H. Lindley,	Minneapolis.
W. B. Linton,	Merriam Park.
J. Warren Little,	Minneapolis.
Q. A. Lowe,	Wabasha.
C. E. Lum,	Wadena.
C. E. Lundgren,	St. Paul.
A. McDonald,	St. Paul.
J. W. McDonald,	Minneapolis.
W. H. Magie,	Duluth.
Geo. E. Maloy,	Glencoe.
T. T. Mann,	St. Paul.
T. M. Marcellus,	Sleepy Eye.
J. C. Markoe,	St. Paul.
F. P. C. Marquis,	Anoka.
J. H. Martindale,	Minneapolis.
W. W. Mayo,	Rochester.
W. J. Mayo,	Rochester.
C. H. Mayo,	Rochester.
B. J. Merrill,	Stillwater.
G. F. Merritt,	St. Peter.
Jas. McAuliffe.	Duluth.
C. A. McCollum,	Minneapolis.
C. F. McComb,	Duluth.
S. C. McCormick,	Duluth.
Thos. McDavitt,	Winona.
S. W. McEwan,	Alexandria.
J. B. McGaughey,	Winona.
A. McLaren,	St. Paul.
John McLean,	Moorhead.
H. L. McKinstry,	Zumbrota.
W. R. McMahan,	Mankato.
O. H. McMichael,	Vernon Centre.
R. S. McMurdy,	Minneapolis.
J. G. McNamara,	St. Paul.
M. Mikkelsen,	Delavan.
P. H. Millard,	St. Paul.
Lester C. Mitchell,	Minneapolis.
G. R. Maloney,	Belle Plain.
J. B. Moffatt,	Minneapolis.
T. H. Monahan,	Minneapolis.
R. L. Moore,	Spring Valley.
J. T. Moore,	Minneapolis.
J. E. Moore,	Minneapolis.
W. B. Morley,	St. Paul.

Digitized by Google

G. D. Moyer,	Montevideo.
F. S. Muckey,	Minneapolis.
A. Mueller,	New Ulm.
J. F. Mulholland,	Jordan.
L. H. Munger,	Fairhaven.
A. J. Murdock,	Minneapolis.
J. H. Murphy,	St. Paul.
Garrett Murphy,	Garden City.
L. Murphy,	Montevideo.
J. W. Murray,	Minneapolis.
P. E. Nagle,	Minneapolis.
Wm. Newhall,	Minneapolis.
Geo. W. Nichols,	Merriam Park.
A. K. Norton,	Minneapolis.
C. H. Norred,	Minneapolis.
Elizabeth L. D. Norred,	Minneapolis.
W. F. Nye,	Minneapolis.
H. J. O'Brien,	St. Paul.
Justus Ohage,	St. Paul.
A. Ortman,	Minneapolis.
H. N. Orton,	Minneapolis.
John Pearson,	Duluth.
T. M. Pieronnet,	West Superior, Wis.
C. E. Persons,	Marshall.
Rob't M. Phelps,	Rochester.
E. Phillips,	Minneapolis.
J. R. Phillips,	Dundas.
J. H. Phillips,	Preston.
O. S. Pine,	St. Paul.
Alcinda A. Pine,	St. Paul.
W. B. Piner,	Minneapolis.
Wm. C. Portmann,	Jackson.
Daniel Pool,	St. Paul.
F. L. Puffer,	Bird Island.
T. F. Quinby,	Minneapolis.
J. A. Quinn,	St. Paul.
T. G. Rainey,	Minneapolis.
A. C. Lamothe Ramsay	St. Cloud.
H. R. Randall,	Rochester.
L. W. Ransom,	Dodge Center.
Gustav A. Renz,	St. Paul.
Henry N. Rice,	Fairmont.
W. Richeson,	St. Paul.
C. E. Riggs,	St. Paul.
A. F. Ritchie,	Duluth.
Park Ritchie,	St. Paul.
Alex. Rixa,	St. Joseph.
Warren B. Robb,	St. Paul.
Thomas S. Roberts,	Minneapolis.
Arthur C. Rogers,	Faribault.
C. E. Rogers,	Montevideo.
F. M. Rose,	Faribault.
J. C. Rosser,	Brainerd.
W. H. Rowe,	St. James.
N. D. Satterlee,	Winnebago City.
F. B. Sampson,	Minneapolis.
A. H. Salsbury,	Minneapolis.
J. E. Schadle,	St. Paul.
A. J. Schmidt,	Northfield.
A. E. Senkler,	St. Paul.
Jacob Schock,	New Ulm.
T. W. Sheardown,	Chicago, Ill.
F. O. Sherwin,	Duluth.
A. Shimonek,	St. Paul.
J. S. Schrader,	Delano.
J. D. Simpson,	Henderson.
Chas. Simpson,	Minneapolis.
C. G. Slagle,	Minneapolis.
Chas. Slaughter,	Duluth.
C. E. Smith,	St. Paul.
V. Smith,	St. Paul.
H. Sneve,	Minneapolis.
Olaf Sohlberg,	St. Paul.
A. E. Spaulding.	Luverne.
E. C. Spencer,	St. Paul.
C. J. Spratt,	Minneapolis.
Franklin Staples,	Winona.
A. H. Steen,	Cottage Grove.
E. D. Steele,	Mankato.
J. H. Stewart,	St. Paul.
C. A. Stewart,	Duluth.
J. Clark Stewart,	Minneapolis.
A. W. Stinchfield,	Eyota.
S. M. Stocker,	Duluth.
E. H. Stockton,	Minneapolis.
A. G. Stoddard,	Beaver Falls.
A. J. Stone,	St. Paul.
J. J. Stone,	Wabasha.
W. M. Stratton,	Granite Falls.
Daniel Straw,	Wells.
O. C. Strickler,	New Ulm.
M. Sullivan,	Adrian.
John A. Sweat,	Minneapolis.
H. B. Sweetser,	Minneapolis.
C. F. Sweeney,	St. Paul.
Arthur Sweeney,	St. Paul.
A. B. Sweet,	Hanley Falls.
J. H. Stuart,	Minneapolis.
C. H. Tasker,	Minneapolis.
M. J. Taylor,	Janesville.
Orren C. Tarbox,	Princeton.
N. S. Teft,	Plainview.
Tonnes Thams,	Minneapolis.
David O. Thomas,	Minneapolis.
O. F. Thomas,	Lakeland.
J. W. Thompson,	St. Paul.
C. M. Thompson,	Northfield.
W. Thorne,	Hastings.
J. H. Tilford,	Windom.
J. M. Todd,	Madison.
F. E. Towers,	Minneapolis.
M. A. Trow,	Chatfield.
Wm. G. W. Tupper,	Minneapolis.
W. H. Twiford,	Geneva.
J. Q. A. Vail,	Homer.
M. P. Vander Horck,	Minneapolis.
F. W. Van Slyke,	St. Paul.
W. C. Voight,	Stillwater.
Kee Wakefield,	Hutchinson.
Wm. Wakefield,	Lake Benton.
Belle M. Walrath,	St. Paul.
H. S. Walrath,	St. Paul.

Digitized by Google

S. S. Wallbank,	Duluth.
Annes T. Wass,	Minneapolis.
Lizzie R. Wass,	Minneapolis.
O. A. Watier,	Stillwater.
A. C. Wedge,	Albert Lea.
C. L. Wells,	Minneapolis.
J. W. B. Welcome,	Sleepy Eye.
T. H. Wimer,	Marshall.
A. Wharton,	St. Paul.
C. A. Wheaton,	St. Paul.
H. N. Wheeler,	Grand Forks, N. D.
A. S. Whetstone,	Minneapolis.
Mary S. Whetstone,	Minneapolis.
N. K. Whittemore,	Elk River.
Cornelius Williams,	St. Paul.
C. B. Witherle,	St. Paul.
H. H. Wilcox,	Albert Lea.
Irving D. Wiltrout,	Hudson, Wis.
G. W. Wood,	Faribault.
E. S. Wood,	St. Paul.
M. E. Woodling,	Minneapolis.
F. R. Woodward,	Minneapolis.
C. J. Woolway,	St. Paul.
H. M. Workman,	Tracy.
S. J. Wooster,	Minneapolis.
Arthur Young,	Prescott, Wis.
E. B. Zier,	Minneapolis.

DECEASED MEMBERS.

A. E. Ames,	Minneapolis.
Francis Atwood,	St. Paul.
Otis Ayer,	Le Sueur.
E. T. Bingham,	Medford.
Solomon Blood,	Owatonna.
W. H. Byford, Jr.,	Minneapolis.
Perry Chance,	Delano.
W. W. Clark,	Mankato.
H. L. Coon,	Northfield.
T. B. Etheredge,	Hastings.
E. N. Fairbanks,	Austin.
P. J. Goodhue,	St. Paul.
S. D. Grant,	Watertown.
A. Guernon,	Little Falls.
D. W. Hand,	St. Paul.
H. C. Hand,	St. Paul.
A. B. Hawley,	Red Wing.
P. A. Heitz,	St Paul.
N. B. Hill,	Minneapolis.
J. C. Jones,	Mankato.
G. M. Lambert,	Stillwater.
F. Lawson,	Osseo.
G. A. Lamb,	Minneapolis.
Daniel Leisure,	St. Paul.
S. H. Lindley,	Minneapolis.
C. Lord;	Shakopee.
P. McKeon,	Minneapolis.
H. McMahon,	Sauk Rapids.
Winthrop Miller,	Minneapolis.
F. H. Milligan,	Wabasha.
F. W. H. Müller,	Henderson.
H. F. Noyes,	Stillwater.
Jay Owens,	St. Paul.
B. B. Palmer,	Sauk Center.
Ralph Parkin,	Minnesota Lake.
W. K. Perrine,	Minneapolis.
J. B. Phillips,	St. Paul.
T. R. Potts,	St. Paul.
J. K. Reiner,	Stillwater.
W. H. H. Richardson,	Winona.
S. B. Sheardown,	Winona.
W. J. Sloan,	U. S. A.
E. H. Smith,	St. Paul.
J. S. Sprague,	Hastings.
Jacob H. Stewart,	St. Paul.
S. P. Stoddard,	Lake Crystal.
W. W. Sweeney,	Red Wing.
J. E. Tibbetts,	Cannon Falls.
J. L. Wakefield,	Shakopee.
J. S. Whilldin,	St. Paul.
Samuel Willey,	St. Paul.
Samuel Thayer,	Burlington, Vt.

HONORARY MEMBERS.

C. H. Alden,	St. Paul.
C. B. Ayers,	Omaha, Neb.
Wm. Baldwin,	St. Paul.
Louis Bauer,	St. Louis, Mo.
Dwight W. Day,	Eau Claire.
E. C. Dudley,	Chicago, Ill.
F. W. Epley,	New Richmond, Wis.
Christian Fenger,	Chicago, Ill.
C. L. Flannagan,	Olympia, Wash.
J. B. Griswold,	Grand Rapids, Mich.
Otis Hoyt,	Hudson, Wis.
W. F. Lewis,	Mankato, Minn.
C. Carli,	Stillwater, Minn.
J. B. LeBlond,	Sioux Falls, S. D.
C. T. Parkes,	Chicago, Ill.
Glover Perin,	St. Paul.
J. W. Reed,	Lime Springs, Iowa
Nicholas Senn,	Milwaukee, Wis.
J. V. Shoemaker,	Philadelphia, Penn.
F. R. Smith,	St. Paul.
A. B. Stuart,	Santa Rosa, Cal.
Geoffrey Vivian,	Alexandria, Minn.

Digitized by Google

THE NEXT MEETING OF THE SOCIETY

WILL BE HELD AT

MINNEAPOLIS

ON THE THIRD WEDNESDAY IN JUNE, 1891.

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

N.B 169

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

COUNTWAY LIBRARY
HC 36NW 7

N.B 169

Digitized by Google

Digitized by Google